

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 IHC 3,9 g

2. Edition

En

VA 4/100 H 1100 CR 71

0 460 304 149

Setting of the pointer at a stroke of 1 mm in
relation to outlet "A".

Nozzle-and-holder assembly
1 688 901 020 (172 + 3 bar)

supersedes 6.75

company IHC

engine D 239

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B

Pre-setting see reverse side

Pre-stroke setting 0,5 mm \pm 0,04

Testoil-ISO 4113

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1 1 Timing device travel	800	3,2-4,0 mm		
1 2 Supply pump pressure	800	4,8-5,3 kp/cm ²		
1 3 Full load delivery without charge-air pressure	700	63,0-64,0 cm ³ /1000 strokes		2,5
Full load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1 4 Idle speed regulation	350	12,0-18,0 cm ³ /1000 strokes		3,0
1 5 Start	100	mind.85,0 cm ³ /1000 strokes		
1 6 Full-load speed regulation	1130	31,0-39,0 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2 1 Timing device	rev/min	260-420(230-450)	800	950-1070
	mm	Start	(2,9-4,3)	4,7-5,4(4,4-5,7)
		200	800	1100
2 2 Supply pump	rev/min	1,7-2,2(1,5-2,4)	(4,6-5,5)	5,9-6,4(5,7-6,6)
	kp/cm ²	500		1100
Overflow delivery	rev/min	55-100(40-110)		55-100(40-110)
	cm ³ /10 s			

2 3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1180-1250 (1160-1270)	0	
		1130	(30,0-40,0)	
		1050	71,0-74,0 (70,0-75,0)	
		700	(62,5-64,5)	
		500	61,5-64,5 (60,5-65,5)	
	Stop	1100	0	
Idle stop	Full	400-450 (380-470)	0	
		350	(11,0-19,0)	
		100	mind.85,0	
End stop	Start	220-300		

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Angle to the stop-plate	Pre-setting dimensions
<p>Pump $\alpha = 25 \pm 4^\circ$ $\beta = 40 \pm 8^\circ$ $\gamma = 30 \pm 8^\circ$ $\delta = 40 \pm 15^\circ$</p>	<p>Pump Dimension IV = 2,0 mm Dimension V = 24,6 mm</p>

Testoil-ISO 4113

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 IHC 3,5 b 1

4. Edition

En

VA 4/100 H 1250 CR 8-1 (P)
Setting of the pointer at a stroke of 1 mm in
relation to outlet "A".

Nozzle-and-holder assembly
1 688 901 020 (172 + 3 bar)

Pre-stroke setting 0,5 mm \pm 0,02 (\pm 0,04)

supersedes 2.78
company IHC
engine D 206

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B
Pre-setting see reverse side

Testoil-ISO 4113

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1 1 Timing device travel	800	2,5-3,3 mm		
1 2 Supply pump pressure	800	5,2-5,7 kp/cm ²		
1 3 Full-load delivery without charge-air pressure	800	62,5-63,5 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1 4 Idle speed regulation	400	22,0-28,0 cm ³ /1000 strokes		3,0
1 5 Start 196 bar	100	mind.85,0 cm ³ /1000 strokes		
1 6 Full-load speed regulation	1300	21,0-29,0 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2 1 Timing device	rev/min	Start				
	mm	300-450	600	800	1000	1100-1250
		1,1-1,6(0,8-1,9)	(2,2-3,6)	3,6-4,6(3,3-4,9)	4,7-5,4(4,4-5,7)	
2 2 Supply pump	rev/min	200		800	1250	
	kp/cm ²	1,2-1,7(1,0-1,9)		(5,0-5,9)	6,8-7,3(6,6-7,5)	
Overflow delivery	rev/min	500			1250	
	cm ³ /10 s	55-100(40-110)			55-100(40-110)	

2 3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1320-1380 (1300-1400) 1300 1230-1260 1200 800 500	0 (20,0-30,0) Start 62,5-65,5 (61,5-66,5) (62,0-64,0) 54,0-57,0 (53,0-58,0)	
	Stop			
Idle stop	Full	480-550 (460-570) 400	0 (21,0-29,0)	
End stop	Start	100 220-300	mind.85,0	

Angle to the stop-plate	Pre-setting dimensions
Pump $\alpha = 25 \pm 4^\circ$ $\beta = 40 \pm 8^\circ$ $\gamma = 30 \pm 8^\circ$ $\delta = 60 \pm 8^\circ$	Pump = 3,6 mm Dimension IV = 25,0 mm Dimension V

Testoil-ISO 4113

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 IHC 3,5 1

4. Edition

En

VA 4/100 H 1150 CR 8-3

Setting of the pointer at a stroke of 1 mm in relation to outlet "A".

Nozzle-and-holder assembly 1 688 901 020 (172+3 bar)

Pre-stroke setting 0,5 mm \pm 0,02 (\pm 0 04)

supersedes 7.79

company IHC

engine D 206

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Test Instructions and Test Equipment VDT-WPP 161/4 B

Pre-setting see reverse side

Testoil-ISO 4113

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1.1 Timing device travel	900	3,7-4,7 mm		
1.2 Supply pump pressure	900	5,4-5,9 kp/cm ²		
1.3 Full-load delivery without charge-air pressure	800	65,0-66,0 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1.4 Idle speed regulation	400	12,0-18,0 cm ³ /1000 strokes		3,0
1.5 Start 196 bar	100	mind.90,0 cm ³ /1000 strokes		
1.6 Full-load speed regulation	1200	36,0-44,0 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2.1 Timing device	rev/min	400-530(370-560)	600	900	1050-1160
	mm	Start	1,0-2,0(0,7-2,3)	(3,4-5,0)	5,2-5,9(4,9-6,2)
2.2 Supply pump	rev/min	200		900	1150
	kp/cm ²	1,9-2,4(1,7-2,6)		(5,2-6,1)	6,2-6,7(6,0-6,9)
Overflow delivery	rev/min	500			1150
	cm ³ /10 s	55-100(40-110)			55-100(40-110)

2.3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1250-1300 (1230-1320)	0	
		1200	(35,0-45,0)	
		1130-1160	Start	
		1100	61,0-64,0	(60,0-65,0)
		800		(64,5-66,5)
		500	64,0-67,0	(63,0-68,0)
	Stop	1150	0	
Idle stop	Full	450-500 (430-520)	0	
		400	(11,0-19,0)	
		100	mind.90,0	
End stop		220-320		

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Angle to the stop-plate	Pre-setting dimensions
<p>Pump</p> <p>$\alpha = 25 \pm 4^\circ$ AB FD 926 $15 \pm 4^\circ$</p> <p>$\beta = 36 \pm 8^\circ$</p> <p>$\gamma = 30 - 8^\circ$</p> <p>$\delta = 60 \pm 8^\circ$</p>	<p>Pump</p> <p>Dimension IV = 4,60 mm</p> <p>Dimension V = 24,65 mm</p>

Testoil-ISO 4113

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 IHC 3,5 b 2

3. Edition

VA 4/100 H 1090 CR 8-2
Setting of the pointer at a stroke of 1 mm in
relation to outlet "A".

Nozzle-and-holder assembly
1 688 901 020 (172 + 3 bar)

supersedes 12.77
company IHC
engine D 206

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers:
Test Instructions and Test Equipment
VDT-WPP 161/4 B
Pre-setting see reverse side

Pre-stroke setting 0,5 mm \pm 0.04

Testoil-ISO 4113

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1.1 Timing device travel	800	3,7-4,7 mm		
1.2 Supply pump pressure	800	5,2-5,7 kp/cm ²		
1.3 Full-load delivery without charge-air pressure	800	60,5-61,5 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1.4 Idle speed regulation	400	9,0-15,0 cm ³ /1000 strokes		3,0
1.5 Start 196 bar	100	mind.90,0 cm ³ /1000 strokes		
1.6 Full-load speed regulation	1150	26,0-34,0 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2.1 Timing device	rev/min	100-230(70-260)	800	900	930-1070
	mm	Start	(3,4-5,0)	4,2-5,2(3,9-5,5)	4,7-5,4(4,4-5,7)
2.2 Supply pump	rev/min	200	800		1090
	kp/cm ²	2,2-2,7(2,0-2,9)	(5,0-5,9)		6,4-6,9(6,2-7,1)
Overflow delivery	rev/min	500			1090
	cm ³ /10 s	55-100(40-110)			55-100(40-110)

2.3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1170-1200 (1150-1240)	0	
		1150	(25,0-35,0)	
		1100-1120	Start	
		1050	61,5-64,5	(60,5-65,5)
		800		(60,0-62,0)
		500	52,5-55,5	(51,5-56,5)
	Stop	1090	0	
Idle stop	Full	450-500 (430-520)	0	
		400	(8,0-16,0)	
		100	mind.90,0	
End stop		220-320		

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Angle to the stop-plate	Pre-setting dimensions
<p>Pump $\alpha = 25 \pm 4^\circ$ $\beta = 40 \pm 8^\circ$ $\gamma = 30 \pm 8^\circ$ $\delta = 60 \pm 8^\circ$</p>	<p>Pump Dimension IV = 1,0 mm Dimension V = 24,6 mm</p>

Testoil-ISO 4113

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 IHC 2,4 c 1

2. Edition

VA 3/100 H 1250 CR 9-1 (P)
Setting of the pointer at a stroke of 1 mm in
relation to outlet "A".

Nozzle-and-holder assembly
1 688 901 020 (172 + 3 bar)

Pre-stroke setting 0,3 mm \pm 0,04

supersedes 11.73
company IHC
engine D 155-Crawler 500 C

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B
Pre-setting see reverse side

Testoil-ISO 4113

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1 1 Timing device travel	900	3,1-4,1 mm		
1 2 Supply pump pressure	900	5,0-5,5 kp/cm ²		
1 3 Full-load delivery without charge-air pressure	800	63,5-64,5 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1 4 Idle speed regulation	300	9,5-10,5 cm ³ /1000 strokes		3,0
1 5 Start 196 bar	100	mind.90,0 cm ³ /1000 strokes		
1 6 Full-load speed regulation	1300	36,0-44,0 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2 1 Timing device	rev/min	320-450(290-480)	600	900	1100-1250
	mm	Start	1,3-2,3(1,0-2,6)	(2,8-4,4)	5,2-5,9(4,9-6,2)
2 2 Supply pump	rev/min	200		900	1250
	kp/cm ²	1,2-1,7(1,0-1,9)		(4,8-5,7)	6,5-7,0(6,3-7,2)
Overflow delivery	rev/min	500			1250
	cm ³ /10 s	55-100(40-110)			55-100(40-110)

2 3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1360-1410 (1340-1430)	0	
		1300	(35,0-45,0)	
		1250-1270	Start	
		1220	61,0-64,0	(60,0-65,0)
		800		(63,0-65,0)
		500	54,5-57,5	(53,5-58,5)
	Stop	1250	0	
Idle stop	Full	340-400 (320-420)	0	
		300	(8,5-16,5)	
	Start	100	mind.90,0	
End stop		220-320		

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Angle to the stop-plate	Pre-setting dimensions
Pump $\alpha = 25 \pm 4^\circ$ $\beta = 55 \pm 8^\circ$ $\gamma = 30 \pm 8^\circ$ $\delta = 60 \pm 8^\circ$	Pump Dimension IV = 3,0 mm Dimension V = 24,6 mm

Testoil-ISO 4113

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 IHC 3,5 e

2. Edition

En

VA 4/100 H 1150 CR 12-10

Setting of the pointer at a stroke of 1 mm in relation to outlet "A".

supersedes 8.73

company IHC

engine D 206

Nozzle-and-holder assembly
1 688 901 020 (172 + 3 bar)

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B

Pre-setting see reverse side

Pre-stroke setting 0,5 mm ± 0,04

Testoil-ISO 4113

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1.1 Timing device travel	800	2,5-3,5 mm		
1.2 Supply pump pressure	800	4,5-5,0 kp/cm ²		
1.3 Full-load delivery without charge-air pressure	800	61,5-62,5 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1.4 Idle speed regulation	370	12,0-18,0 cm ³ /1000 strokes		3,0
1.5 Start 196 bar	100	mind.90,0 cm ³ /1000 strokes		
1.6 Full-load speed regulation	1230	21,0-29,0 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2.1 Timing device	rev/min	350-520(320-550)	600	800	1020-1150
	mm	Start	0,9-1,9(0,6-2,2)	(2,2-3,8)	4,7-5,4(4,4-5,7)
2.2 Supply pump	rev/min	200		800	1150
	kp/cm ²	1,5-2,0(1,3-2,2)		(4,3-5,2)	5,8-6,3(5,6-6,5)
Overflow delivery	rev/min	500			1150
	cm ³ /10 s	55-100(40-110)			55-100(40-110)

2.3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1250-1310 (1230-1330) 1230 1150-1170 1200 800	0 (20,0-30,0) Start 66,0-69,0 (65,0-70,0) (61,0-63,0)	
	Stop	1150	0	
Idle stop	Full	420-500 (400-520) 370	0 (11,0-19,0)	
End stop	Start	100 220-300	mind.90,0	

Angle to the stop-plate	Pre-setting dimensions
<p>Pump</p> $\alpha = 25 \pm 4^\circ$ $\beta = 40 \pm 8^\circ$ $\gamma = 30 \pm 8^\circ$ $\delta = 60 \pm 8^\circ$	<p>Pump</p> <p>Dimension IV = 2,0 mm</p> <p>Dimension V = 24,6 mm</p>

Testoil-ISO 4113

Test Specifications Distributor-Type Fuel Injection Pump

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WPP 001/4 IHC 5,8 p 1

3. Edition

VA 6/100 H 1150 CR 191-1
CR 191-1 P
0 460 306 238

supersedes

comp.

engine

IHC

D-358/280

Nozzle-and-holder assembly
1 688 901 020 (172 + 3 bar)

Pre-stroke setting 0,4 mm \pm 0,02(\pm 0,04)
Setting of the pointer at a stroke of 1 mm in
relation to outlet "A".

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B
Pre-setting see reverse side

Testoil-ISO 4113

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1 1 Timing device travel	900	4,0-4,8 mm		
1 2 Supply pump pressure	900	5,4-5,9 kp/cm ²		
1 3 Full-load delivery without charge-air pressure	800	71,5-72,5 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1 4 Idle speed regulation	450	8,0-14,0 cm ³ /1000 strokes		3,0
1 5 Start	100	mind.70,0 cm ³ /1000 strokes		
1 6 Full-load speed regulation	1200	29,0-35,0 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2 1 Timing device	rev/min	--	600	900	970-1050
	mm	Start	0,8-1,8(0,5-2,1)	(3,7-5,1)	4,7-5,4(4,4-5,7)
2 2 Supply pump	rev/min	200		900	1150
	kp/cm ²	1,9-2,4(1,7-2,6)		(5,2-6,1)	6,2-6,7(6,0-6,9)
Overflow delivery	rev/min	500			1150
	cm ³ /10 s	55-100(40-110)			55-100(40-110)

2 3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1230-1280 (1210-1300)	0	
		1200	(28,0-36,0)	
		1100	68,5-71,5 (67,5-72,5)	
		800	(71,0-73,0)	
		500	72,0-75,0 (71,0-76,0)	
	Stop	1150	0	
Idle stop	Full	480-530 (460-550)	0	
		450	(7,0-15,0)	
End stop	Start	100	mind.70,0	
		250-360		

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Angle to the stop-plate	Pre-setting dimensions
<p>Pump $\alpha = 25 \pm 4^\circ$ $\beta = 45 \pm 8^\circ$ $\gamma = 30 \pm 8^\circ$ $\delta = 60 \pm 8^\circ$</p>	<p>Pump Dimension IV = 2,40 mm Dimension V = 24,65 mm</p>

Testoil-ISO 4113

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 FIA 2,3a 5

1. Edition

En

VA 4/110 H 1200 CL 136-2

0 460 314 021

Setting of the pointer at a stroke of 1 mm in
relation to outlet "A".

Nozzle-and-holder assembly
1 688 901 020 (172 + 3 bar)

supersedes

company Fiat

engine 8045-02

Pre-stroke setting 0,5 mm \pm 0,02 (\pm 0,04)

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B
Pre-setting see reverse side

Testoil-ISO 4113

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1.1 Timing device travel	800	3,7-4,5 mm		
1.2 Supply pump pressure	800	5,3-5,8 kp/cm ²		
1.3 Full-load delivery without charge-air pressure	800	57,5-58,5 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1.4 Idle speed regulation	300	17,0-23,0 cm ³ /1000 strokes		3,0
1.5 Start (autom.)	100	mind.130,0 cm ³ /1000 strokes		
1.6 Full-load speed regulation	1250	36,0-44,0 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2.1 Timing device	rev/min	200-350 (170-380)	800	1100-1230
	mm	Start	(3,4-4,8)	6,1-6,7 (5,8-7,0)
2.2 Supply pump	rev/min	200	800	1200
	kp/cm ²	1,6-2,1 (1,4-2,3)	(5,1-6,0)	6,8-7,3 (6,6-7,5)
Overflow delivery	rev/min	500		1200
	cm ³ /10 s	55-100 (40-110)		55-100 (40-110)

2.3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1320-1400 (1300-1420)	0	
		1250	(35,0-45,0)	
		1180	54,5-57,5 (53,5-58,5)	
		800	(57,0-59,0)	
		500	53,5-56,5 (52,5-57,5)	
	Stop	1200	0	
Idle stop	Full	390-410 (370-430)	0	
		300	(16,0-24,0)	
End stop	Start	100	mind.130,0	
		110-230		

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Angle to the stop-plate	Pre-setting dimensions
Pump $\alpha = 25 \pm 4^\circ$ $\beta = 35 \pm 8^\circ$ $\gamma = 30 \pm 8^\circ$ $\delta = 60 \pm 8^\circ$	Pump Dimension IV 3,0 mm Dimension VI 24,6 mm

Testoil-ISO 4113

Test Specifications Distributor-Type Fuel Injection Pump

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WPP 001/4 IHC 5,8 r

2. Edition

En

VA 6/11 H 1250 CR 404
CR 404 P

0 460 315 036

Setting of the pointer at a stroke
of 1 mm in relation to outlet "A".

Nozzle-and-holder assembly
1 688 901 020 (172 + 3 bar)

supersedes 5.79
company IHC
engine DT 358

Pre-stroke setting 0,5 mm $\pm 0,02$ ($\pm 0,04$)
Kolbenhub 1,0 mm bezogen auf Auslaß "A"

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B
Pre-setting see reverse side

Testoil-ISO 4113

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1.1 Timing device travel	900	5,7-6,5 mm		
1.2 Supply pump pressure	900	5,5-6,0 kp/cm ²		
1.3 Full-load delivery without charge-air pressure	800	85,5-86,5 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1.4 Idle speed regulation	300	14,0-20,0 cm ³ /1000 strokes		3,0
1.5 Start	100	mind.90,0 cm ³ /1000 strokes		
1.6 Full-load speed regulation	1350	24,0-32,0 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2.1 Timing device	rev/min	--	400	900	1250
	mm	Start	1,3-2,3(1,0-2,6)	(5,4-6,8)	7,0-7,7(6,7-8,0)
2.2 Supply pump	rev/min	200		900	1250
	kp/cm ²	1,7-2,2(1,5-2,4)		(5,3-6,2)	6,8-7,3(6,6-7,5)
Overflow delivery	rev/min	500			1250
	cm ³ /10 s	55-100(40-110)			55-100(40-110)

2.3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1380-1430 (1360-1450) 1350 1220 800 500	0 (23,0-33,0) 84,5-87,5 (83,5-88,5) (85,0-87,0) 83,0-87,0 (82,0-88,0)	
	Stop	1250	0	
Idle stop	Full	450-500 (430-520) 300	0 (13,0-21,0)	
End stop	Start	100	mind.90,0	

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A17

Testoil-ISO 4113

Angle to the stop-plate	Pre-setting dimensions
$\alpha = 25 \pm 4^\circ$ $\beta = 50 \pm 8^\circ$ $\gamma = 30 \pm 8^\circ$ $\delta = 60 \pm 8^\circ$	Pump Dimension IV = 1,20 mm Dimension V = 24,65 mm

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 IHC 5,8 q 1

1. Edition

En

VA 6/10 H 1250 CR 402
CR 402 P

Setting of the pointer at a stroke of 1 mm in
relation to outlet "A".

Nozzle-and-holder assembly
1 688 901 020 (172 + 3 bar)

supersedes 5.79
company IHC
engine D-358/943

Pre-stroke setting 0,4 mm \pm 0,02 (\pm 0,04)

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B
Pre-setting see reverse side

Testoil-ISO 4113

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1.1 Timing device travel	1000	4,2-5,0 mm		
1.2 Supply pump pressure	1000	4,9-5,4 kp/cm ²		
1.3 Full-load delivery without charge-air pressure	1000	72,0-73,0 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1.4 Idle speed regulation	450	17,0-23,0 cm ³ /1000 strokes		3,0
1.5 Start	100	mind.80,0 cm ³ /1000 strokes		
1.6 Full-load speed regulation	1300	31,0-39,0 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2.1 Timing device	rev/min	--	500	1000	1250
	mm	Start	1,0-2,0(1,7-2,3)	(3,9-5,3)	5,2-5,9(4,9-6,2)
2.2 Supply pump	rev/min	200		1000	1250
	kp/cm ²	1,2-1,7(1,0-1,9)		(4,7-5,6)	5,6-6,1(5,4-6,3)
Overflow delivery	rev/min	500			1250
	cm ³ /10 s	55-100(40-110)			55-100(40-110)

2.3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1330-1380 (1310-1400)	0	
		1300	(30,0-40,0)	
		1220	71,5-74,5 (70,5-75,5)	
		1000	(71,5-73,5)	
		500	61,0-64,0 (60,0-65,0)	
	Stop	1250	0	
Idle stop	Full	580-650 (560-670)	0	
		450	(16,0-24,0)	
		100	mind.80,0	
End stop	Start	260-360		

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Angle to the stop-plate	Pre-setting dimensions
<p>Pump</p> $\alpha = 25 \pm 4^\circ$ $\beta = 50 \pm 8^\circ$ $\gamma = 30 - 8^\circ$ $\delta = 60 - 8^\circ$	<p>Pump</p> <p>Dimension IV \bar{V} 1,20 mm</p> <p>Dimension V \bar{V} 24,65 mm</p>

Testoil-ISO 4113

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 IHC 5,8 t 1

2. Edition

En

VA 6/10 H 1200 CR 401-2
CR 401-2 P

Nozzle-and-holder assembly
1 688 901 020 (172 + 3 bar)

supersedes 12.80

company IHC

engine D 358/886 US

0 460 306 254

Setting of the pointer at a stroke of 1 mm in
relation to outlet "A".

Pre-stroke setting 0 mm

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B
Pre-setting see reverse side

Testoil-ISO 4113

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1.1 Timing device travel	600	2,3-2,7 mm		
1.2 Supply pump pressure	600	4,1-4,6 kp/cm ²		
1.3 Full-load delivery without charge-air pressure	900	74,0-75,0 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1.4 Idle speed regulation	350	12,0-10,0 cm ³ /1000 strokes		3,0
1.5 Start	100	mind.80,0 cm ³ /1000 strokes		
1.6 Full-load speed regulation	1250	36,0-44,0 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2.1 Timing device	rev/min	--	500	600	1200
	mm	Start	0,9-1,7(0,6-2,0)	(2,0-3,0)	2,9-3,6(2,6-3,9)
2.2 Supply pump	rev/min	200	600	1200	
	kp/cm ²	1,8-2,3(1,6-2,5)	(3,9-4,8)	6,0-6,5(5,8-6,7)	
Overflow delivery	rev/min	500	1200		
	cm ³ /10 s	55-100(40-110)	55-100(40-110)		

2.3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1300-1350 (1280-1370)	0	
		1250	(35,0-45,0)	
		1180	72,0-75,0 (71,0-76,0)	
		900	(73,5-75,5)	
		500	72,0-75,0 (71,0-76,0)	
	Stop	1200	0	
Idle stop	Full	480-530 (480-550)	0	
		350	(11,0-19,0)	
		100	mind.80,0	
Endanschlag		260-360		

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Angle to the stop-plate	Pre-setting dimensions
<p>Pump $\alpha = 25 \pm 4^\circ$ $\beta = 45 \pm 8^\circ$ $\gamma = 30 \pm 8^\circ$ $\delta = 60 \pm 8^\circ$</p>	<p>Pump Dimension IV = 0,90 mm Dimension V = 24,65 mm</p>

Testoil-ISO 4113

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 IHC 5,8 q

2. Edition

VA 6/10 H 1200 CR 403
CR 403 P

Nozzle-and-holder assembly
1 688 901 020 (172 + 3 bar)

supersedes 2.79
company IHC
engine D 358/725

0 460 306 244

Setting of the pointer at a stroke of 1 mm in
relation to outlet "A".

Pre-stroke setting 0 mm

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B
Pre-setting see reverse side

Testoil-ISO 4113

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1.1 Timing device travel	1000	4,7-5,5 mm		
1.2 Supply pump pressure	1000	4,9-5,4 kp/cm ²		
1.3 Full-load delivery without charge-air pressure	800	68,5-69,5 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1.4 Idle speed regulation	500	13,0-19,0 cm ³ /1000 strokes		3,0
1.5 Start	100	mind.90,0 cm ³ /1000 strokes		
1.6 Full-load speed regulation	1300	15,0-23,0 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2.1 Timing device	rev/min	--	600	1000	1200
	mm	Start	1,2-2,2(0,9-2,5)	(4,4-5,8)	5,2-5,9(4,9-6,2)
2.2 Supply pump	rev/min	200		1000	1200
	kp/cm ²	1,8-2,3(1,6-2,5)		(4,5-5,7)	5,5-6,0(5,3-6,2)
Overflow delivery	rev/min	500			1200
	cm ³ /10 s	55-100(40-110)			55-100(40-110)

2.3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1310-1360 (1290-1380) 1300 1150 800 500	0 (14,0-24,0) 70,5-73,5 (69,5-74,5) (68,0-70,0) 66,5-69,5 (65,5-70,5)	
	Stop	1200	0	
Idle stop	Full	590-640 (570-660) 500	0 (12,0-20,0)	
	Start	100	mind.90,0	
End stop		260-360		

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Angle to the stop-plate	Pre-setting dimensions
<p>Pump</p> $\alpha = 25 \pm 4^\circ$ $\beta = 46 \pm 8^\circ$ $\gamma = 30 - 8^\circ$ $\delta = 60 + 8^\circ$	<p>Pump</p> <p>Dimension IV = 2,80 mm</p> <p>Dimension V = 24,65 mm</p>

Testoil-ISO 4113

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 IHC 5,8 n 1

2. Edition

VA 6/10 H 1200 CR 401/1
0 460 306 252

Setting of the pointer at a stroke of 1 mm in
relation to outlet "A".

Pre-stroke setting 0 mm

Nozzle-and-holder assembly
1 688 901 020 (172 + 3 bar)

supersedes 3.81
company IHC
engine D-358-786

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B
Pre-setting see reverse side

Testoil-ISO 4113

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1 1 Timing device travel	600	2,3-2,7 mm		
1 2 Supply pump pressure	600	4,2-4,7 kp/cm ²		
1 3 Full-load delivery without charge-air pressure	900	68,0-69,0 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1 4 Idle speed regulation	350	15,0-21,0 cm ³ /1000 strokes		3,0
1 5 Start	100	mind.80,0 cm ³ /1000 strokes		
1 6 Full-load speed regulation	1250	36,0-44,0 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2 1 Timing device	rev/min	--	500	600	1200
	mm	Start	0,9-1,7(0,6-2,0)	(2,0-3,0)	2,9-3,6(2,6-3,9)
2 2 Supply pump	rev/min		200	600	1200
	kp/cm ²		1,9-2,4(1,7-2,2)	(4,0-4,9)	6,3-6,8(6,1-7,0)
Overflow delivery	rev/min		500		1200
	cm ³ /10 s		55-100(40-110)		55-100(40-110)

2 3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1290-1340 (1270-1360)	0	
		1250	(35,0-45,0)	
		1180	62,0-65,0 (61,0-66,0)	
		900	(67,5-69,5)	
		500	65,5-68,5 (64,5-69,5)	
	Stop	1200	0	
Idle stop	Full	520-580 (500-600)	0	
		350	(14,0-22,0)	
		100	mind.80,0	
End stop	Start	260-360		

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B1

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Angle to the stop-plate	Pre-setting dimensions
$\alpha = 25 \pm 4^\circ$ $\beta = 40 \pm 8^\circ$ $\gamma = 30 \pm 8^\circ$ $\delta = 60 \pm 8^\circ$	Pump Dimension IV = 1,00 mm Dimension V = 24,65 mm

Testoil-ISO 4113

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 IHC 5,1 a

3. Edition

En

VA 6/100 H 1000 CR 199 Nozzle-and-holder assembly
CR 199 P 1 688 901 020 (172+3 bar)

supersedes 6.79
company IHC
engine D 310

0 460 306 233

Setting of the pointer at a stroke of 1 mm in
relation to outlet "A".

Pre-stroke setting 0 mm \pm 0,02(\pm 0,04)

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 8
Pre-setting see reverse side

Testoil-ISO 4113

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1.1 Timing device travel	750	2,8-3,6 mm		
1.2 Supply pump pressure	750	4,6-5,1 kp/cm ²		
1.3 Full-load delivery without charge-air pressure	800	67,0-68,0 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1.4 Idle speed regulation	350	19,0-25,0 cm ³ /1000 strokes		3,0
1.5 Start	100	mind.75,0 cm ³ /1000 strokes		
1.6 Full-load speed regulation	1070	31,0-39,0 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2.1 Timing device	rev/min	--	550	750	1000
	mm	Start	0,9-1,7(0,6-2,0)	(2,5-3,9)	5,1-5,8(4,8-6,1)
2.2 Supply pump	rev/min	200	750	1000	
	kp/cm ²	1,4-1,9(1,2-2,1)	(2,6-3,8)	5,8-6,2(5,6-6,4)	
Overflow delivery	rev/min	500		1000	
	cm ³ /10 s	55-100(40-110)		55-100(40-110)	

2.3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1090-1140 (1070-1160)	0	
		1070	(30,0-40,0)	
		950	64,2-66,8 (63,2-67,8)	
		800	(66,5-68,5)	
		500	65,0-68,0 (64,0-69,0)	
	Stop	1000	0	
Idle stop	Full	350	0 (18,0-26,0)	
End stop	Start	100	mind.75,0	
		260-360		

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Angle to the stop-plate	Pre-setting dimensions
<p>Pump</p> $\alpha = 25 \pm 4^\circ$ $\beta = 32 \pm 8^\circ$ $\gamma = 30 - 8^\circ$ $\delta = 60 + 8^\circ$	<p>Pump</p> <p>Dimension IV = 3,70 mm</p> <p>Dimension V = 24,65 mm</p>

Testoil-ISO 4113

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 IHC 5,1 q

2. Edition

VA 6/100 H 1200 CR 198
CR 198 P

Nozzle-and-holder assembly
1 688 901 020 (172 + 3 bar)

supersedes 10.78
company IHC
engine D 310

0 460 306 231

Setting of the pointer at a stroke of 1 mm in
relation to outlet "A".

Pre-stroke setting mm

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B
Pre-setting see reverse side

Testoil-ISO 4113

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1.1 Timing device travel	650	2,7-3,5 mm		
1.2 Supply pump pressure	650	4,1-4,6 kp/cm ²		
1.3 Full-load delivery without charge-air pressure	800	68,0-69,0 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1.4 Idle speed regulation	380	12,0-18,0 cm ³ /1000 strokes		3,0
1.5 Start	100	mind.75,0 cm ³ /1000 strokes		
1.6 Full-load speed regulation	1250	36,0-44,0 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2.1 Timing device	rev/min	--	450	650	800
	mm	Start	0,8-1,6(0,5-1,9)	2,7-3,5(2,4-3,8)	3,4-4,1(3,1-4,4)
2.2 Supply pump	rev/min	200	650	1200	
	kp/cm ²	1,4-1,9(1,2-2,1)	(3,9-4,8)	6,2-6,7(6,0-6,9)	
Overflow delivery	rev/min	500	1200		
	cm ³ /10 s	55-100(40-110)	55-100(40-110)		

2.3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1300-1350 (1280-1370)	0	
		1250	(35,0-45,0)	
		1150	64,0-67,0 (63,0-68,0)	
		800	(67,5-69,5)	
		500	69,0-72,0 (68,0-73,0)	
	Stop	1200	0	
Idle stop	Full	400-450 (380-470)	0	
		380	(11,0-19,0)	
End stop	Start	100 260-360	mind.75,0	

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Angle to the stop-plate	Pre-setting dimensions
<p>Pump $\alpha = 25 \pm 4^\circ$ $\beta = 48 \pm 8^\circ$ $\gamma = 30 \pm 8^\circ$ $\delta = 60 \pm 8^\circ$</p>	<p>Pump Dimension IV = 2,20 mm Dimension V = 24,65 mm</p>

Testoil-ISO 4113

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 IHC 5,1 q 1

4. Edition

En

VA 6/100 H 1200 CR 196

CR 196 P

Nozzle-and-holder assembly
1 688 901 020 (172 + 3 bar)

0 460 306 228

Setting of the pointer at a stroke of 1 mm in
relation to outlet "A".

Pre-stroke setting 0,3 mm \pm 0,02 (\pm 0,04)

supersedes 12.79

company IHC

engine D 310

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers

Test Instructions and Test Equipment
VDT-WPP 161/4 B

Pre-setting see reverse side

Testoil-ISO 4113

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1.1 Timing device travel	800	4,7-5,7 mm		
1.2 Supply pump pressure	800	4,2-4,7 kp/cm ²		
1.3 Full-load delivery without charge-air pressure	800	62,5-63,5 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1.4 Idle speed regulation	450	13,0-19,0 cm ³ /1000 strokes		3,0
1.5 Start	100	mind.75,0 cm ³ /1000 strokes		
1.6 Full-load speed regulation	1270	21,0-29,0 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2.1 Timing device	rev/min	120-270(90-300)	400	800	1000-1150
	mm	Start	2,3-3,3(2,0-3,6)	(4,4-6,0)	6,1-6,8(5,8-7,1)
2.2 Supply pump	rev/min	200		800	1200
	kp/cm ²	2,0-2,5(1,8-2,7)		(4,0-4,9)	5,3-5,8(5,1-6,0)
Overflow delivery	rev/min	500			1200
	cm ³ /10 s	55-100(40-110)			55-100(40-110)

2.3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1280-1320 (1260-1340) 1270 1220-1250 1150 800 500	0 (20,0-30,0) Start 63,5-66,5 (62,5-67,5) (62,0-64,0) 57,5-60,5 (56,5-61,5)	
	Stop	1200	0	
Idle stop	Full	530-590 (510-610) 450	0 (12,0-20,0)	
End stop	Start	100 260-360	mind.75,0	

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Angle to the stop-plate	Pre-setting dimensions
<p>Pump</p> $\alpha = 25 \pm 4^\circ$ $\beta = 50 \pm 8^\circ$ $\gamma = 30 - 8^\circ$ $\delta = 60 + 8^\circ$	<p>Pump</p> <p>Dimension IV = 0,60 mm</p> <p>Dimension V = 24,65 mm</p>

Testoil-ISO 4113

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 STE 2,3 d

3. Edition
En

VA 3/100 H 1200 CR 193
0 460 303 151

Nozzle-and-holder assembly
1 688 901 020 (172 + 3 bar)

supersedes 5.77
company Steyr
engine WD 308.45

Pre-stroke setting 0,3 mm \pm 0,02 (\pm 0,04)

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B
Pre-setting see reverse side

Testoil-ISO 4113

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1.1 Timing device travel	1000	3,2-4,2 mm		
1.2 Supply pump pressure	1000	5,2-5,7 kp/cm ²		
1.3 Full-load delivery without charge-air pressure	1200	62,0-63,0 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1.4 Idle speed regulation	300	9,5-15,5 cm ³ /1000 strokes		3,0
1.5 Start	100	mind.70,0 cm ³ /1000 strokes		
1.6 Full-load speed regulation	1280	34,0-42,0 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2.1 Timing device	rev/min	450-600(420-630)	700	1000	1050-1200
	mm	Start	1,0-2,0(0,7-2,3)	(2,9-4,5)	4,3-5,0(4,0-5,3)
2.2 Supply pump	rev/min	200		1000	1200
	kp/cm ²	1,6-2,1(1,4-2,3)		(5,0-5,9)	5,9-6,4(5,7-6,6)
Overflow delivery	rev/min	500			1200
	cm ³ /10 s	55-100(40-110)			55-100(40-110)

2.3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1340-1390 (1320-1410) 1280 1220-1250 1200 900 500	0 (35,0-43,0) Start (61,0-63,5) 67,0-69,0 (66,0-70,0) 58,5-61,5 (57,5-62,5)	
	Stop	1200	0	
Idle stop	Full	360-410 (340-430) 300	0 (8,5-16,5)	
End stop	Start	100 120-220	mind.70,0	

B9

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Angle to the stop-plate	Pre-setting dimensions
<p>Pump $\alpha = 25 \pm 4^\circ$ $\beta = 50 \pm 8^\circ$ $\gamma = 30 \pm 8^\circ$ $\delta = 60 \pm 8^\circ$</p>	<p>Pump Dimension IV = 4,20 mm Dimension V = 24,65 mm</p>

Testoil-ISO 4113

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 IHC 2,9 c 1

3. Edition

En

VA 3/100 H 1200 CR 61

Setting of the pointer at a stroke of 1 mm in relation to outlet "A".

supersedes 7.73
company IHC
engine D 179 WW 40 H 9

Nozzle-and-holder assembly
1 688 901 020 (172 + 3 bar)

Pre-stroke setting 0,3 mm \pm 0,04

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B
Pre-setting see reverse side

Testoil-ISO 4113

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1.1 Timing device travel	800	3,7-4,7 mm		
1.2 Supply pump pressure	800	4,8-5,3 kp/cm ²		
1.3 Full-load delivery without charge-air pressure	800	70,0-71,0 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1.4 Idle speed regulation	375	12,0-18,0 cm ³ /1000 strokes		3,0
1.5 Start	100	mind.90,0 cm ³ /1000 strokes		
1.6 Full-load speed regulation	1300	26,0-34,0 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2.1 Timing device	rev/min	Start				
	mm	250-400(220-430)	500	800	1000	1050-1200
		1,3-2,3(1,0-2,6)	(3,4-5,0)	4,7-5,7(4,4-6,0)	6,0-6,7(5,7-7,0)	
2.2 Supply pump	rev/min	200		800		1200
	kp/cm ²	1,8-2,3(1,6-2,5)		(4,6-5,5)		6,3-6,8(6,1-7,0)
Overflow delivery	rev/min	500				1200
	cm ³ /10 s	55-100(40-110)				55-100(40-110)

2.3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1340-1400 (1320-1420)	0	
		1300	(25,0-35,0)	
		1220-1240	Start	
		1180	72,0-75,0	(71,0-76,0)
		800		(69,5-71,5)
		500	64,5-67,5	(63,5-68,5)
	Stop	1200	0	
Idle stop	Full	440-520 (420-540)	0	
		375	(11,0-19,0)	
		100	mind.90,0	
End stop	Start	220-300		

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Angle to the stop-plate	Pre-setting dimensions
<p>Pump</p> $\alpha = 25 \pm 4^\circ$ $\beta = 50 \pm 8^\circ$ $\gamma = 30 - 8^\circ$ $\delta = 60 \pm 8^\circ$	<p>Pump</p> $\text{Dimension JV} = 1,6 \text{ mm}$ $\text{Dimension V} = 24,6 \text{ mm}$

Testoil-ISO 4113

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 IHC 3,9 e

2. Edition

En

VA 4/100 H 1150 CR 69-3
0 460 304 224

Nozzle-and-holder assembly
1 688 901 020 (172 + 3 bar)

supersedes 10.74
company IHC
engine D 239

Setting of the pointer at a stroke of 1 mm in
relation to outlet "A".

Pre-stroke setting 0,5 mm \pm 0,04

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B
Pre-setting see reverse side

Testoil-ISO 4113

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1.1 Timing device travel	800	3,7-4,7 mm		
1.2 Supply pump pressure	800	6,0-6,5 kp/cm ²		
1.3 Full-load delivery without charge-air pressure	800	64,5-65,5 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1.4 Idle speed regulation	400	7,0-13,0 cm ³ /1000 strokes		3,0
1.5 Start	100	mind.90,0 cm ³ /1000 strokes		
1.6 Full-load speed regulation	1200	31,0-39,0 cm ³ /1000 strokes		

2. Test Specifications		Checking values in brackets			
2.1 Timing device	rev/min	170-300(140-330)	400	800	930-1080
	mm	Start	0,9-1,9(0,6-2,2)	(3,4-5,0)	4,7-5,4(4,4-5,7)
2.2 Supply pump	rev/min	200		800	1150
	kp/cm ²	3,2-3,7(3,0-3,9)		(5,8-6,7)	7,3-7,8(7,1-8,0)
Overflow delivery	rev/min	500			1150
	cm ³ /10 s	55-100(40-110)			55-100(40-110)
2.3 Fuel deliveries					
Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²	
End stop	Full	1230-1280 (1210-1300)	0		
		1200	(30,0-40,0)		
		1150-1170	Start		
		1100	68,5-71,5		
		800	(67,5-72,5)		
		500	(64,0-66,0)		
			60,5-63,5	(59,5-64,5)	
	Stop	1150	0		
Idle stop	Full	450-500 (430-520)	0		
		400	(6,0-14,0)		
		100	mind.90,0		
End stop	Start	220-320			

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B13

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Angle to the stop-plate	Pre-setting dimensions
<p>Pump</p> <p>$\alpha = 25 \pm 4^\circ$</p> <p>$\beta = 40 \pm 8^\circ$</p> <p>$\gamma = 30 \pm 8^\circ$</p> <p>$\delta = 60 \pm 8^\circ$</p>	<p>Pump</p> <p>Dimension IV = 3,0 mm</p> <p>Dimension V = 24,6 mm</p>

Testoil-ISO 4113

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 IHC 3,9 d 5

1. Edition

En

VA 4/100 H 1150 CR 69-1
0 460 304 178

Nozzle-and-holder assembly
1 688 901 020 (172 + 3 bar)

supersedes

company IHC

engine D 239-S 824

Setting of the pointer at a stroke of 1 mm in
relation to outlet "A".

Pre-stroke setting 0,5 mm \pm 0,04

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B
Pre-setting see reverse side

Testoil-ISO 4113

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1.1 Timing device travel	700	2,1-2,9 mm		
1.2 Supply pump pressure	700	4,2-4,7 kp/cm ²		
1.3 Full-load delivery without charge-air pressure	800	73,0-74,0 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1.4 Idle speed regulation	350	12,0-18,0 cm ³ /1000 strokes		3,0
1.5 Start 196 bar	100	mind.90,0 cm ³ /1000 strokes		
1.6 Full-load speed regulation	1200	41,0-49,0 cm ³ /1000 strokes		

2. Test Specifications		Checking values in brackets			
2.1 Timing device	rev/min	300-450(270-480)	500	700	950-1100
	mm	Start	1,0-2,0(0,7-2,3)	(1,8-3,2)	4,7-5,4(4,4-5,7)
2.2 Supply pump	rev/min	200		700	1150
	kp/cm ²	1,5-2,0(1,3-2,2)		(4,0-4,9)	6,0-6,5(5,8-6,7)
Overflow delivery	rev/min	500			1150
	cm ³ /10 s	55-100(40-110)			55-100(40-110)
2.3 Fuel deliveries					
Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²	
End stop	Full	1230-1280 (1210-1300)	0		
		1200	(40,0-50,0)		
		1150-1180	Start		
		1120	73,5-76,5		
		800	(72,5-77,5)		
		500	(72,5-74,5)		
			65,5-68,5	(64,5-69,5)	
	Stop	1150	0		
Idle stop	Full	410-460 (390-480)	0		
		350	(11,0-19,0)		
		100	mind.90,0		
End stop	Start	220-300			

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R/S

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Angle to the stop-plate	Pre-setting dimensions
<p>Pump</p> $\alpha = 25 \pm 4^\circ$ $\beta = 40 \pm 8^\circ$ $\gamma = 30 \pm 4^\circ$ $\delta = 60 \pm 8^\circ$	<p>Pump</p> <p>Dimension IV = 2,8 mm</p> <p>Dimension V = 24,6 mm</p>

Testoil-ISO 4113

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 IHC 5,1 f

2. Edition

En

VA 6/100 H 1350 BR 49

0 460 306 077

supersedes 10.69

company IHC

engine D 310/36

Nozzle-and-holder assembly
1 688 901 020 (172 + 3 bar)

Pre-stroke setting 0,5 mm
Plunger lift of 1,0 mm related to outlet "A"

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDI-WPP 161/4 B
Pre-setting see reverse side

Testoil-ISO 4113

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1 1 Timing device travel	700	6,8-7,8 mm		
1 2 Supply pump pressure	700	5,1-5,6 kp/cm ²		
1 3 Full-load delivery without charge-air pressure	1000	68,5-69,5 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1 4 Idle speed regulation	350	17 - 23 cm ³ /1000 strokes		3,0
1 5 Start	100	mind. 80 cm ³ /1000 strokes		
1 6 Full-load speed regulation	1430	46,0-54,0 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2 1 Timing device	rev/min	300-450 (270-480)	700	1080-1230
	mm	Start	(6,5-8,1)	13,7-14,4 (13,4-14,7)
		100	700	1350
2 2 Supply pump	rev/min	1,5-2,0 (1,3-2,2)	(4,9-5,8)	7,4-7,9 (7,2-8,1)
	kp/cm ²	500	1000	
Overflow delivery	rev/min	mind. 25	55-100 (40-110)	
	cm ³ /10 s			

2 3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1500-1550 (1480-1570) 1430 1330 1000 500	0 (45 - 55) 63-66 (62 - 67) (68 - 70) 56-59 (55 - 60)	
	Stop	1350	0	
Idle stop	Full	450-540 (460-560) 350	0 (16 - 24)	
End stop	Start	100 mind. 200	mind. 80,0	

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Angle to the stop-plate	Pre-setting dimensions
<p>Pump</p> $\alpha = 25 \pm 4^\circ$ $\beta = 45 \pm 8^\circ$ $\gamma = 30 \pm 8^\circ$ $\delta = 60 \pm 8^\circ$	<p>Pump</p> <p>Dimension IV = 3,0 mm BMP 161/32</p> <p>Dimension V = - mm</p>

Testoil-ISO 4113

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 DEE 2,5 d

3. Edition

VA 3/100 H 1250 BR 26 Z
0 460 303 050

supersedes 1.68
company John Deere
engine 44 B

Nozzle-and-holder assembly
1 688 901 020 (172 + 3 bar)

Pre-stroke setting 0,3 mm \pm 0,02 (\pm 0,04)

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDI-WPP 161/4 B
Pre-setting see reverse side

Testoil-ISO 4113

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1 1 Timing device travel	800	7,8-8,8 mm		
1 2 Supply pump pressure	800	5,0-5,5 kp/cm ²		
1 3 Full-load delivery without charge-air pressure	1100	70,0-71,0 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1 4 Idle speed regulation	400	9,0-15,0 cm ³ /1000 strokes		3,0
1 5 Start	--	-- cm ³ /1000 strokes		
1 6 Full-load speed regulation	1300	38,0-46,0 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2 1 Timing device	rev/min	160-330 (130-360)	800	1030-1180
	mm	Start	(7,5-9,1)	11,7-12,4 (11,4-12,7)
2 2 Supply pump	rev/min	200	800	1250
	kp/cm ²	1,3-1,8 (1,1-2,0)	(4,8-5,7)	7,0-7,5 (6,8-7,7)
Overflow delivery	rev/min	500	1000	
	cm ³ /10 s	mind.25	55-125 (40-140)	

2.3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1360-1460 (1340-1480)	0	
		1400	max. 3,0	
		1300	(37,0-47,0)	
		1200	66,0-69,0 (65,0-70,0)	
		1100	(69,5-71,5)	
		500	58,0-62,0 (57,0-63,0)	
		100	mind.45,5	
	Stop	1250	0	
Idle stop	Full	520-580 (500-600)	0	
		400	(8,0-16,0)	
	Start	--	--	

B19

Angle to the stop-plate	Pre-setting dimensions
Pump $\alpha = 25 \pm 4^\circ$ $\beta = 44 \pm 8^\circ$ $\gamma = 30 \pm 8^\circ$ $\delta = 60 \pm 8^\circ$	Pump Dimension IV = 2,5 mm Dimension V = - mm Dimension I = 7,0 mm Dimension II = 12,0 mm Dimension III = 28,3 mm

Testoil-ISO 4113

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 IHC 5,8 c

3. Edition

En

VA 6/110 H 1250 BR 47

0 460 316 006

supersedes 3.72

company IHC

engine D 358 TC

Nozzle-and-holder assembly
1 688 901 020 (172 + 3 bar)

Pre-stroke setting 0,5 mm
Plunger lift of 1,0 mm related to outlet "A"

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B
Pre-setting see reverse side

Testoil-ISO 4113

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1 1 Timing device travel	800	8,3-9,1 mm	0 bar	
1 2 Supply pump pressure	800	4,9-5,4 kp/cm ²	0 bar	
1 3 Full-load delivery without charge-air pressure	800	77,0-80,0 cm ³ /1000 strokes	0 bar	2,5
Full-load delivery with charge-air pressure	800	88,5-89,5 cm ³ /1000 strokes	0,43 bar	
1 4 Idle speed regulation	300	17,0-23,0 cm ³ /1000 strokes	0 bar	3,0
1 5 Start	100	mind.100 cm ³ /1000 strokes	0 bar	
1 6 Full-load speed regulation	1350	21,0-29,0 cm ³ /1000 strokes	0,46 bar	

2. Test Specifications

Checking values in brackets

2 1 Timing device	rev/min	300-450(270-480)	800	1100-1250
	mm	Start	(8,0-9,4)	13,7-14,4(13,4-14,7)
2 2 Supply pump	rev/min	100	800	1250
	kp/cm ²	1,0-1,5(0,8-1,7)	(4,7-5,6)	6,3-6,8(6,1-7,0)
Overflow delivery	rev/min	500		1250
	cm ³ /10 s	55-125(40-140)		55-125(40-140)

2 3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1390-1440 (1370-1460)	0	0,46 bar
		1350	(20,0-30,0)	0,46 bar
		1250-1280	Start	0,46 bar
		1200	89,0-92,0 (88,0-93,0)	0,46 bar
		800	(88,0-90,0)	0,43 bar
		500	74,0-77,0 (73,0-78,0)	0,10 bar
	Stop	1250	0	
Idle stop	Full	400-450 (380-470)	0	
		300	(16,0-24,0)	
End stop	Start	100	mind.100	
		mind.180		

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Angle to the stop plate	Pre-setting dimensions
Pump $\alpha = 25 \pm 4^\circ$ $\beta = 45 \pm 8^\circ$ $\gamma = 30 \pm 8^\circ$ $\delta = 60 \pm 8^\circ$	Pump Dimension IV = 1,5 mm bis FD 130 Dimension V = - mm Dimension IV = 1,0 mm ab FD 131

Testoil-ISO 4113

LDA

Start of timing advance 65 - 85 mm Hg

End of timing advance 280 - 320 mm Hg

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 IHC 5,1 d

3. Edition

VA 6/100 H 1200 BR 14

0 460 306 040

supersedes 12.70
company IHC
engine D 310

Nozzle-and-holder assembly
1 688 901 020 (172 + 3 bar)

Pre-stroke setting 0,3 mm
Plunger lift of 1,0 mm related to outlet "A"

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B
Pre-setting see reverse side

Testoil-ISO 4113

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1.1 Timing device travel	1000	6,1-7,1 mm		
1.2 Supply pump pressure	1000	6,3-6,8 kp/cm ²		
1.3 Full-load delivery without charge-air pressure	800	60,0-61,0 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1.4 Idle speed regulation	300	9,5-15,5 cm ³ /1000 strokes		3,0
1.5 Start	100	mind.95,0 cm ³ /1000 strokes		
1.6 Full-load speed regulation	1300	21,0-29,0 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2.1 Timing device	rev/min	400-550 (370-580)	1000	1010-1120
	mm	Start	(5,8-7,4)	6,7-7,4(6,4-7,7)
2.2 Supply pump	rev/min	100	1000	1200
	kp/cm ²	2,2-2,7(2,0-2,9)	(5,9-7,3)	7,0-7,5(6,8-7,7)
Overflow delivery	rev/min	500	1000	1200
	cm ³ /10 s	--	55-125(40-140)	55-125(40-140)

2.3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1330-1380 (1310-1400)	0	
		1300	(20,0-30,0)	
		1180	63,0-66,0 (62,0-67,0)	
		800	(59,5-61,5)	
		500	54,5-57,5 (53,5-58,5)	
	Stop	1200	0	
Idle stop	Full	340-400 (320-420)	0	
		300	(8,5-16,5)	
	Start	100	mind.95,0	
		500	max. 47,5	
End stop		mind.95		

B23

Angle to the step-plate	Pre-setting dimensions
Pump $\alpha = 25 \pm 4^\circ$ $\beta = 40 \pm 8^\circ$ $\gamma = 30 \pm 8^\circ$ $\delta = 60 \pm 8^\circ$	Pump Dimension IV = 2,5 mm Dimension V = - mm

Testoil-ISO 4113

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 IND 2,7 a i

2. Edition

En

VA 6/100 H 2000 BR 126

0 460 306 097

Start-of-delivery setting for
plunger lift 0.72 mm referenced to
outlet "B" at 13.5° before TDC cyl.
no.6

Nozzle-and-holder assembly
1-688 901 020 (172 + 3 bar)

supersedes 1.68

company Volvo-Penta/Peugeot
engine Peugeot XDP 618

Pre-stroke setting 0,6 mm

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B
Pre-setting see reverse side

Testoil-ISO 4113

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1 1 Timing device travel	1300	8,0-9,0 mm		
1 2 Supply pump pressure	1300	5,1-5,6 kp/cm ²		
1 3 Full-load delivery without charge-air pressure	1200	36,0-37,0 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1 4 Idle speed regulation	300	7,0-13,0 cm ³ /1000 strokes		3,0
1 5 Start	100	mind.40,0 cm ³ /1000 strokes		
1 6 Full-load speed regulation	2150	14,0-20,0 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2 1 Timing device	rev/min	550-710 (520-740)	1300	1730-1920
	mm	Start	(7,7-9,3)	13,7-14,4 (13,4-14,7)
2 2 Supply pump	rev/min	100	1300	2000
	kp/cm ²	0,2-0,7 (0 -0,9)	(4,9-5,8)	6,9-7,4 (6,7-7,6)
Overflow delivery	rev/min	500		2000
	cm ³ /10 s	mind.25		55-100 (40-110)

2 3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	2200-2300 (2180-2320)	0	
		2150	(13,0-21,0)	
		2000	33,0-36,0 (32,0-37,0)	
		1200	(35,5-37,5)	
		500	21,0-25,0 (20,0-26,0)	
	Stop	2000	0	
Idle stop	Full	380-450 (360-470)	0	
		300	(6,0-14,0)	
	Start	100	mind.40,0	
End stop		300-550		

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Angle to the stop-plate	Pre-setting dimensions
Pump $\alpha = 25 \pm 4^\circ$ $\beta = 42 \pm 8^\circ$ $\gamma = 30 \pm 8^\circ$ $\delta = 60 \pm 8^\circ$	Pump Dimension IV = - mm Dimension V = - mm Dimension I = 7,0 mm Dimension II = 14,0 mm Dimension III = 35,2 mm

Testoil-ISO 4113

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 MWM 2,5 a

2. Edition

En

VA 3/100 H 1150 BR 65

0 460 303 098

supersedes 6.70
company MWM
engine D 925-3

Nozzle-and-holder assembly
1 688 901 020 (172 + 3 bar)

Pre-stroke setting 0,4 mm
Plunger lift of 1,0 mm related to outlet "A"

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B
Pre-setting see reverse side

Testoil-ISO 4113

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1 1 Timing device travel	800	6,2-7,2 mm		
1 2 Supply pump pressure	800	5,1-5,6 kp/cm ²		
1 3 Full-load delivery without charge-air pressure	900	60,0-61,0 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1 4 Idle speed regulation	250	10,0-16,0 cm ³ /1000 strokes		3,0
1 5 Start	100	mind.80,0 cm ³ /1000 strokes		
1 6 Full-load speed regulation	1200	22,0-28,0 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2 1 Timing device	rev/min	300-450 (270-480)	800	930-1050
	mm	Start	(5,9-7,5)	8,7-9,4 (8,4-9,7)
		100	800	1150
2 2 Supply pump	rev/min	1,7-2,2 (1,5-2,4)	(4,9-5,8)	6,1-6,6 (5,9-6,8)
	kp/cm ²	500	1000	
Overflow delivery	rev/min	mind. 25	55-125 (40-140)	
	cm ³ /10 s			

2 3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1230-1330 (1210-1350)	0	
		1200	(21,0-29,0)	
		1130	58,5-61,5 (57,5-62,5)	
		900	(59,5-61,5)	
		500	53,0-56,0 (52,0-57,0)	
	Stop	1150	0	
Idle stop	Full	360-420 (340-440)	0	
		250	(9,0-17,0)	
		100	mind.80,0	
		500	30,0-54,0 (29,0-55,0)	
End stop		mind.150		

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C3

C3

Angle to the stop-plate	Pre-setting dimensions
Pump $\alpha = 25 \pm 4^\circ$ $\beta = 50 \pm 8^\circ$ $\gamma = 30 \pm 8^\circ$ $\delta = 60 \pm 8^\circ$	Pump Dimension IV = 0,4 mm Dimension V = - mm

Testoil-ISO 4113

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 IHC 5,8 d 1

2. Edition

En

VA 6/100 H 1200 CR 21-4

Setting in accordance with WPP 161/4, 1st.

Supplement plunger lift 1.0 mm
referenced to outlet "A".

Nozzle-and-holder assembly
1 688 901 020 (172 + 3 bar)

supersedes 11.73
company IHC
engine D 358-866 Mexiko

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B
Pre-setting see reverse side

Pre-stroke setting 0 mm

Testoil-ISO 4113

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1 1 Timing device travel	800	4,0-5,0 mm		
1 2 Supply pump pressure	800	4,7-5,2 kp/cm ²		
1 3 Full-load delivery without charge-air pressure	800	68,5-69,5 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1 4 Idle speed regulation	300	12,0-18,0 cm ³ /1000 strokes		3,0
1 5 Start 196 bar	100	mind.90,0 cm ³ /1000 strokes		
1 6 Full-load speed regulation	1300	15,0-23,0 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2 1 Timing device	rev/min	250-350(220-380)	400	800	1000-1150
	mm	Start	1,3-2,3(1,0-2,6)	(3,7-5,3)	5,2-5,9(4,9-6,2)
2 2 Supply pump	rev/min	200		800	1200
	kp/cm ²	2,0-2,5(1,8-2,7)		(4,5-5,4)	5,8-6,3(5,6-6,5)
Overflow delivery	rev/min	500			1200
	cm ³ /10 s	55-100(40-110)			55-100(40-110)

2 3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1330-1370 (1310-1390) 1300 1230-1250 1150 800 500	0 (14,0-24,0) Start 70,5-73,5 (69,5-74,5) (68,0-70,0) 65,5-68,5 (64,5-69,5)	
	Stop	1200	0	
Idle stop	Full	400-460 (380-480) 300	0 (11,0-19,0)	
End stop	Start	100 220-300	mind.90,0	

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C5

C5

Angle to the stop-plate	Pre-setting dimensions
<p>Pump $\alpha = 25 \pm 4^\circ$ $\beta = 50 \pm 8^\circ$ $\gamma = 30 \pm 8^\circ$ $\delta = 60 \pm 8^\circ$</p>	<p>Pump Dimension IV = 4,00 mm Dimension V = 24,65 mm</p>

Testoil-ISO 4113

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 IHC 5,1 c 3

3. Edition

VA 6/100 H 1050 CR 21-3

Setting of the pointer at a stroke of 1 mm in relation to outlet "A".

supersedes 10.76
company IHC
engine D 310 8/71

Nozzle-and-holder assembly
1 688 901 020 (172 + 3 bar)

Pre-stroke setting 0,3 mm

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B
Pre-setting see reverse side

Testoil-ISO 4113

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1 1 Timing device travel	800	2,0-3,0 mm		
1 2 Supply pump pressure	800	4,5-5,0 kp/cm ²		
1 3 Full-load delivery without charge-air pressure	800	60,0-61,0 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	---	-- cm ³ /1000 strokes		
1 4 Idle speed regulation	500	17,0-23,0 cm ³ /1000 strokes		3,0
1 5 Start 196 bar	100	mind.85,0 cm ³ /1000 strokes		
1 6 Full-load speed regulation	1120	11,0-19,0 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2 1 Timing device	rev/min	500-620(470-650)	650	800	920-1050
	mm	Start	0,5-1,5(0,2-1,8)	(1,7-3,3)	3,4-4,1(3,1-4,4)
2 2 Supply pump	rev/min	200		800	1050
	kp/cm ²	1,3-1,8(1,1-2,0)		(4,3-5,2)	5,5-6,0(5,3-6,2)
Overflow delivery	rev/min	500			1050
	cm ³ /10 s	55-100(40-110)			55-100(40-110)

2 3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1150-1200 (1130-1220)	0	
		1120	(10,0-20,0)	
		1020	60,0-63,0 (59,0-64,0)	
		800	(59,5-61,5)	
		500	56,5-59,5 (55,5-60,5)	
	Stop	1050	0	
Idle stop	Full	600-660 (580-680)	0	
		500	(16,0-24,0)	
End stop	Start	100 220-300	mind.85,0	

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C7

C7

Angle to the stop-plate	Pre-setting dimensions
<p>Pump</p> $\alpha = 25 \pm 4^\circ$ $\beta = 40 \pm 8^\circ$ $\gamma = 30 \pm 8^\circ$ $\delta = 60 \pm 8^\circ$	<p>Pump</p> <p>Dimension IV = 2,0 mm</p> <p>Dimension V = 24,6 mm</p>

Testoil-ISO 4113

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 IHC 3,5 g

3. Edition

VA 4/100 H 1250 CR 12-13
CR 12-16

supersedes 8.77
company IHC
engine D 239

Nozzle-and-holder assembly
1 688 901 020 (172 + 3 bar)

Pre-stroke setting 0,5 mm \pm 0,04
Plunger lift of 1,0 mm related to outlet "A"

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B
Pre-setting see reverse side

Testoil-ISO 4113

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1 1 Timing device travel	800	5,0-6,0 mm		
1 2 Supply pump pressure	800	5,6-6,1 kp/cm ²		2,5
1 3 Full-load delivery without charge-air pressure	800	67,5-68,5 cm ³ /1000 strokes		
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1 4 Idle speed regulation	350	14,5-20,5 cm ³ /1000 strokes		3,0
1 5 Start 196 bar	100	mind. 90,0 cm ³ /1000 strokes		
1 6 Full-load speed regulation	1320	31,0-39,0 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2 1 Timing device	rev/min	190-330(160-360)	400	800	990-1130
	mm	Start	1,2-2,2(0,9-2,5)	(4,7-6,3)	7,0-7,7(6,7-8,0)
2 2 Supply pump	rev/min	200	800	1250	
	kp/cm ²	2,5-3,0(2,3-3,2)	(5,4-6,3)	7,1-7,6(6,9-7,8)	
Overflow delivery	rev/min	500		1250	
	cm ³ /10 s	55-100(40-110)		55-100(40-110)	

2 3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1350-1400 (1330-1420)	0	
		1320	(30,0-40,0)	
		1260-1290	Start	
		1200	73,0-76,0 (72,0-77,0)	
		800	(67,0-69,0)	
		500	63,0-66,0 (62,0-67,0)	
	Stop	1250	0	
Idle stop	Full	450-500 (430-520)	0	
		350	(13,5-21,5)	
End stop	Start	100	mind. 90,0	
		220-300		

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C9

Angle to the stop-plate	Pre-setting dimensions
$\text{Pump} = 25 \pm 4^\circ$ $\alpha = 40 \pm 8^\circ$ $\beta = 30 \pm 8^\circ$ $\gamma = 60 \pm 8^\circ$	Pump $\text{Dimension IV} = 3,60 \text{ mm}$ $\text{Dimension V} = 24,65 \text{ mm}$

Testoil-ISO 4113

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 IHC 3,5 e 2

1. Edition

En

VA 4/100 H 1200 CR 12-12

supersedes

company

IHC

engine

D 239

Nozzle-and-holder assembly
1 688 901 020 (172 + 3 bar)

Pre-stroke setting 0,5 mm \pm 0,04
Plunger lift of 1,0 mm related to outlet "A"

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B
Pre-setting see reverse side

Testoil-ISO 4113

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1 1 Timing device travel	800	3,2-4,2 mm		
1 2 Supply pump pressure	800	4,9-5,4 kp/cm ²		
1 3 Full-load delivery without charge-air pressure	800	70,0-71,0 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1 4 Idle speed regulation	350	12,0-18,0 cm ³ /1000 strokes		3,0
1 5 Start 196 bar	100	mind.90,0 cm ³ /1000 strokes		
1 6 Full-load speed regulation	1300	24,0-32,0 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2 1 Timing device	rev/min	220-370(190-400)	500	800	1000-1150
	mm	Start	1,3-2,3(1,0-2,6)	(2,9-4,5)	4,7-5,4(4,4-5,7)
2 2 Supply pump	rev/min	200		800	1200
	kp/cm ²	1,9-2,4(1,7-2,6)		(4,7-5,6)	6,3-6,8(6,1-7,0)
Overflow delivery	rev/min	500			1200
	cm ³ /10 s	55-100(40-110)			55-100(40-110)

2 3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1350-1400 (1330-1420) 1300 1200-1240 1180 800 500	0 (23,0-33,0) Start 73,0-76,0 (72,0-77,0) (69,5-71,5) 66,0-69,0 (65,0-70,0)	
	Stop	1200	0	
Idle stop	Full	470-550 (450-570) 350	0 (11,0-19,0)	
	Start	100	mind.90,0	
End stop		220-300		

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C11

C11

Angle to the stop-plate	Pre-setting dimensions
$\text{Pump} = 25 \pm 4^\circ$ $\alpha = 40 \pm 8^\circ$ $\beta = 30 \pm 8^\circ$ $\delta = 60 \pm 8^\circ$	Pump $\text{Dimension IV} = 1,8 \text{ mm}$ $\text{Dimension V} = 24,6 \text{ mm}$

Testoil-ISO 4113

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 IHC 3,9 m

2. Edition

En

VA 4/100 H 1100 CR 12-6

supersedes 6.78
company IHC
engine D 239-544

Nozzle-and-holder assembly
1 688 901 020 (172 + 3 bar)

Pre-stroke setting 0,5 mm $\pm 0,02$ ($\pm 0,04$)
Plunger lift of 1,0 mm related to outlet "A"

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B
Pre-setting see reverse side

Testoil-ISO 4113

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1.1 Timing device travel	600	3,7-4,7 mm		
1.2 Supply pump pressure	600	4,3-4,8 kp/cm ²		
1.3 Full-load delivery without charge-air pressure	1050	65,5-66,5 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1.4 Idle speed regulation	350	12,0-18,0 cm ³ /1000 strokes		3,0
1.5 Start 196 bar	100	mind.85,0 cm ³ /1000 strokes		
1.6 Full-load speed regulation	1150	42,0-50,0 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2.1 Timing device	rev/min	120-270(90-300)	300	600	850-1030
	mm	Start	1,0-1,3(0,7-1,6)	(3,4-5,0)	6,1-6,8(5,8-7,1)
2.2 Supply pump	rev/min	200		600	1100
	kp/cm ²	1,9-2,4(1,7-2,6)		(4,1-5,0)	6,3-6,8(6,1-7,0)
Overflow delivery	rev/min	500			1100
	cm ³ /10 s	55-100(40-110)			55-100(40-110)

2.3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1200-1270 (1180-1290)	0	
		1150	(41,0-51,0)	
		1120-1140	Start	
		1050	(65,0-67,0)	
		900	(63,0-67,0)	
		500	60,5-63,5 (62,0-68,0)	
	Stop	1100	0	
Idle stop	Full	390-450 (370-470)	0	
		350	(11,0-19,0)	
End stop	Start	100	mind.85,0	
		220-300		

C13

C13

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Angle to the stop-plate	Pre-setting dimensions
<p>Pump</p> $\alpha = 25 \pm 4^\circ$ $\beta = 40 \pm 8^\circ$ $\gamma = 30 \pm 8^\circ$ $\delta = 60 \pm 8^\circ$	<p>Pump</p> <p>Dimension IV = 2,00 mm</p> <p>Dimension V = 24,65 mm</p>

Testoil-ISO 4113

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 IHC 5,8 i

2. Edition

VA 6/100 H 1250 CR 94
0 460 306 210

supersedes 3.77
company IHC
engine D 358

Nozzle-and-holder assembly
1 688 901 020 (172 + 3 bar)

Pre-stroke setting 0 mm
Plunger lift of 1,0 mm related to outlet "A"

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B
Pre-setting see reverse side

Testoil-ISO 4113

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1 1 Timing device travel	700	2,4-3,4 mm		
1 2 Supply pump pressure	700	3,7-4,2 kp/cm ²		
1 3 Full-load delivery without charge-air pressure	800	67,5-68,5 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1 4 Idle speed regulation	400	15,0-21,0 cm ³ /1000 strokes		3,0
1 5 Start	100	mind.80,0 cm ³ /1000 strokes		
1 6 Full-load speed regulation	1300	26,0-34,0 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2 1 Timing device	rev/min	300-430(270-460)	500	700	750-900
	mm	Start	0,8-1,8(0,5-2,1)	(2,1-3,7)	3,4-4,1(3,1-4,4)
2 2 Supply pump	rev/min	200		700	1250
	kp/cm ²	1,2-1,7(1,0-1,9)		(3,5-4,4)	5,5-6,0(5,3-6,2)
Overflow delivery	rev/min		500		1250
	cm ³ /10 s		55-100(40-110)		55-100(40-110)

2 3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1370-1420 (1350-1440)	0	
		1300	(25,0-35,0)	
		1230-1250	Start	
		1200	61,0-64,0(60,0-65,0)	
		800	(67,0-69,0)	
		500	69,0-72,0(68,0-73,0)	
	Stop	1250	0	
Idle stop	Full	560-620 (540-640)	0	
		400	(14,0-22,0)	
		100	mind.80,0	
End stop		220-320		

C15

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Angle to the stop-plate	Pre-setting dimensions
Pump $\alpha = 25 \pm 4^\circ$ $\beta = 45 \pm 8^\circ$ $\gamma = 30 \pm 8^\circ$ $\delta = 60 \pm 8^\circ$	Pump Dimension IV = 0,6 mm Dimension V = 24,6 mm

Testoil-ISO 4113

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 IHC 4,4 a

4. Edition

En

VA 4/110 H 1150 CR 92
0 460 314 027

Setting in accordance with WPP 161/4,1st.

Supplement plunger lift 1.0 mm
referenced to outlet "A".

Nozzle-and-holder assembly
1 688 901 020 (172 + 3 bar)

supersedes

company

engine

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B
Pre-setting see reverse side

Pre-stroke setting 0 mm

Testoil-ISO 4113

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1 1 Timing device travel	900	5,1-6,1 mm		
1 2 Supply pump pressure	900	5,3-5,8 kp/cm ²		
1 3 Full-load delivery without charge-air pressure	800	78,5-79,5 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1 4 Idle speed regulation	350	12,0-18,0 cm ³ /1000 strokes		3,0
1 5 Start 196 bar	100	mind.130,0 cm ³ /1000 strokes		
1 6 Full-load speed regulation	1200	36,0-44,0 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2 1 Timing device	rev/min	300-430(270-460)	600	900	930-1080
	mm	Start	1,9-2,9(1,6-3,2)	(4,8-6,4)	6,1-6,8(5,8-7,1)
		200		900	1150
2 2 Supply pump	rev/min				
	kp/cm ²	1,9-2,4(1,7-2,6)		(5,1-6,0)	6,3-6,8(6,1-7,0)
		500			1150
Overflow delivery	rev/min				
	cm ³ /10 s	55-100(40-110)			55-100(40-110)

2 3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1250-1300 (1230-1320)	0	
		1200		(35,0-45,0)
		1100	81,0-84,0	(80,0-85,0)
		800		(78,0-80,0)
		500	75,5-78,5	(74,5-79,5)
	Stop	1150	0	
Idle stop	Full	420-480 (400-500)	0	
		350		(11,0-19,0)
	Start	100	mind.130,0	
End stop		220-320		

C17

C47

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Angle to the stop-plate	Pre-setting dimensions
<p>Pump</p> $\alpha = 25 \pm 4^\circ$ $\beta = 40 \pm 8^\circ$ $\gamma = 30 - 8^\circ$ $\delta = 60 \pm 8^\circ$	<p>Pump</p> <p>Dimension IV = 4,0 mm</p> <p>Dimension V = 24,6 mm</p>

Testoil-ISO 4113

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 IHC 5,1 m

4. Edition

En

VA 6/100 H 1250 CR 91
0 460 306 206

supersedes 11.77
company IHC
engine D 310

Nozzle-and-holder assembly
1 688 901 020 (172 + 3 bar)

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B
Pre-setting see reverse side

Pre-stroke setting 0 mm
Plunger lift of 1,0 mm related to outlet "A"

Testoil-ISO 4113

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1 1 Timing device travel	750	2,3-3,1 mm		
1 2 Supply pump pressure	750	3,7-4,2 kp/cm ²		
1 3 Full-load delivery without charge-air pressure	800	64,5-65,5 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1 4 Idle speed regulation	300	12,0-18,0 cm ³ /1000 strokes		3,0
1 5 Start	100	mind.80,0 cm ³ /1000 strokes		
1 6 Full-load speed regulation	1330	26,0-34,0 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2 1 Timing device	rev/min	430-560(400-590)	600	750	800-950
	mm	Start	0,7-1,7(0,4-2,0)	(2,0-3,4)	3,4-4,1(3,1-4,4)
2 2 Supply pump	rev/min	200		750	1250
	kp/cm ²	1,1-1,6(0,9-1,8)		(3,5-4,4)	5,7-6,2(5,5-6,4)
Overflow delivery	rev/min	500			1250
	cm ³ /10 s	55-100(40-110)			55-100(40-110)

2 3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1370-1420 (1350-1440)	0	
		1330	(25,0-35,0)	
		1260-1280	Start	
		1230	60,0-63,0	(59,0-64,0)
		800		(64,0-66,0)
		500	61,5-64,5	(60,5-65,5)
	Stop	1250	0	
Idle stop	Full	300-380 (310-400)	0	
		300	(11,0-19,0)	
End stop	Start	100	mind.80,0	
		220-320		

C19

C19

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Angle to the stop-plate	Pre-setting dimensions
Pump $\alpha = 25 \pm 4^\circ$ $\beta = 50 \pm 8^\circ$ $\gamma = 30 \pm 8^\circ$ $\delta = 60 \pm 8^\circ$	Pump Dimension IV = 2,0 mm Dimension V = 24,6 mm

Testoil-ISO 4113

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 IHC 5,8 n

2. Edition

En

VA 4/110 H 1200 CR 85-1
0 460 314 036

supersedes 6.78
company IHC
engine D 246

Nozzle-and-holder assembly
1 688 901 020 (172 + 3 bar)

Pre-stroke setting 0,4 mm \pm 0,02 (\pm 0,04)
Plunger lift of 1,0 mm related to outlet "A"

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B
Pre-setting see reverse side

Testoil-ISO 4113

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1 1 Timing device travel	800	4,2-5,0 mm		
1 2 Supply pump pressure	800	4,9-5,4 kp/cm ²		
1 3 Full-load delivery without charge-air pressure	800	73,0-74,0 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	-	-- cm ³ /1000 strokes		
1 4 Idle speed regulation	300	9,0-15,0 cm ³ /1000 strokes		3,0
1 5 Start	100	mind.110,0 cm ³ /1000 strokes		
1 6 Full-load speed regulation	1220	36,0-44,0 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2 1 Timing device	rev/min	350-480(330-510)	500	800	830-980
	mm	Start	0,7-1,7(0,4-2,1)	(3,9-5,3)	5,2-5,9(4,9-6,2)
2 2 Supply pump	rev/min	200		800	1200
	kp/cm ²	1,8-2,3(1,6-2,5)		(4,7-5,6)	6,4-6,9(6,2-7,1)
Overflow delivery	rev/min	500			1200
	cm ³ /10 s	55-100(40-110)			55-100(40-110)

2 3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1260-1310 (1240-1330)	0	
		1220	(35,0-45,0)	
		1150-1170	Start	
		1100	76,0-79,0	(75,0-80,0)
		800		(72,5-74,5)
		500	64,5-67,5	(63,5-68,5)
	Stop	1200	0	
Idle stop	Full	360-410 (340-430)	0	
		300	(8,0-16,0)	
	Start	100	mind.110,0	
End stop		220-340		

C21

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Angle to the stop-plate	Pre-setting dimensions
<p>Pump</p> $\alpha = 25 \pm 4^\circ$ $\beta = 40 \pm 8^\circ$ $\gamma = 30 \pm 8^\circ$ $\delta = 60 \pm 8^\circ$	<p>Pump</p> <p>Dimension IV = 3,00 mm</p> <p>Dimension V = 24,65 mm</p>

Testoil-ISO 4113

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 IHC 5,1 c 1

2. Edition

En

VA 6/100 H 1150 CR 79
0 460 306 191

supersedes 3.76

company IHC

engine D 310

Nozzle-and-holder assembly
1 688 901 020 (172 + 3 bar)

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B
Pre-setting see reverse side

Pre-stroke setting 0,4 mm ± 0,04

Plunger lift of 1,0 mm related to outlet "A"

Testoil-ISO 4113

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1.1 Timing device travel	800	3,2-4,2 mm		
1.2 Supply pump pressure	800	5,3-5,8 kp/cm ²		
1.3 Full-load delivery without charge-air pressure	800	59,5-60,5 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1.4 Idle speed regulation	300	11,0-17,0 cm ³ /1000 strokes		3,0
1.5 Start 196 bar	100	mind.85,0 cm ³ /1000 strokes		
1.6 Full-load speed regulation	1220	21,0-29,0 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2.1 Timing device	rev/min	300-430 (270-460)	500	800	1030-1150
	mm	Start	0,9-1,9 (0,6-2,2)	(2,9-4,5)	5,2-5,9 (4,9-6,2)
2.2 Supply pump	rev/min	200		800	1150
	kp/cm ²	2,2-2,7 (2,0-2,9)		(5,1-6,0)	6,6-7,1 (6,4-7,3)
Overflow delivery	rev/min	500			1150
	cm ³ /10 s	55-100 (40-110)			55-100 (40-110)

2.3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1240-1300 (1220-1320)	0	
		1220	(20,0-30,0)	
		1170-1190	Start	
		1130	55,5-58,5	(54,5-59,5)
		800		(59,0-61,0)
		500	50,5-53,5	(49,5-54,5)
	Stop	1150	0	
Idle stop	Full	360-420 (340-440)	0	
		300	(10,0-18,0)	
		100	mind.85,0	
End stop		220-320		

C23

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Angle to the stop plate	Pre-setting dimensions
Pump $\alpha = 25 \pm 4^\circ$ $\beta = 45 \pm 8^\circ$ $\gamma = 30 \pm 8^\circ$ $\delta = 60 \pm 8^\circ$	Pump Dimension IV Dimension V

Testoil-ISO 4113

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 MWM 2,5 b

2. Edition

En

VA 3/100 H 1150 CR 86
0 460 303 148

supersedes 12.74
company MWM
engine D 925-3 L

Nozzle-and-holder assembly
1 688 901 020 (172 + 3 bar)

Pre-stroke setting 0,2 mm \pm 0,02 (\pm 0,04)

Plunger lift of 1,0 mm related to outlet "A"

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDI-WPP 161/4 B
Pre-setting see reverse side

Testoil-ISO 4113

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1 1 Timing device travel	800	2,2-3,2 mm		
1 2 Supply pump pressure	800	5,2-5,7 kp/cm ²		
1 3 Full-load delivery without charge-air pressure	900	56,5-57,5 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1 4 Idle speed regulation	250	12,0-18,0 cm ³ /1000 strokes		3,0
1 5 Start	100	mind.80,0 cm ³ /1000 strokes		
1 6 Full-load speed regulation	1180	26,0-34,0 cm ³ /1000 strokes		

2. Test Specifications		Checking values in brackets			
2 1 Timing device	rev/min	390-520(360-550)	600	800	1050-1200
	mm	Start	0,8-1,8(0,5-2,1)	(1,9-3,5)	4,3-5,0(4,0-5,3)
2 2 Supply pump	rev/min	200		800	1150
	kp/cm ²	2,5-3,0(2,3-3,2)		(5,0-5,9)	6,2-6,7(6,0-6,9)
Overflow delivery	rev/min	500			1150
	cm ³ /10 s	55-100(40-110)			55-100(40-110)

2 3 Fuel deliveries				
Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1190-1230 (1170-1250)	0	
		1180	(25,0-35,0)	
		1150-1170	Start	
		1120	53,5-56,5 (52,5-57,5)	
		900	(56,0-58,0)	
		500	53,0-56,0 (52,0-57,0)	
	Stop	1150	0	
Idle stop	Full	280-370 (260-390)	0	
		250	(11,0-19,0)	
End stop	Start	100	mind.80,0	
		150-250		

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D1

Angle to the stop-plate	Pre-setting dimensions
Pump $\alpha = 25 \pm 4^\circ$ $\beta = 50 \pm 8^\circ$ $\gamma = 30 - 8^\circ$ $\delta = 60 \pm 8^\circ$	Pump Dimension IV = 5,0 mm Dimension V = 24,6 mm

Testoil-ISO 4113

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 IHC 5,8 d 3

1. Edition

VA 6/100 H 1150 CR 21-5
Setting in accordance with WPP 161/4, 1st.
Supplement plunger lift 1.0 mm
referenced to outlet "A".

Nozzle-and-holder assembly
1 688 901 020 (172 + 3 bar)

supersedes

company IHC
engine D 310

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B
Pre-setting see reverse side

Pre-stroke setting 0 mm

Testoil-ISO 4113

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1.1 Timing device travel	800	2,2-3,2 mm		
1.2 Supply pump pressure	800	4,6-5,1 kp/cm ²		
1.3 Full-load delivery without charge-air pressure	800	59,5-60,5 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1.4 Idle speed regulation	350	7,0-13,0 cm ³ /1000 strokes		3,0
1.5 Start 196 bar	100	mind.90,0 cm ³ /1000 strokes		
1.6 Full-load speed regulation	1220	26,0-34,0 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2.1 Timing device	rev/min	450-570(420-600)	650	800	1050-1160
	mm	Start	0,6-1,6(0,3-1,9)	(1,9-3,5)	5,2-5,9(4,9-6,2)
		200		800	1150
2.2 Supply pump	rev/min	1,7-2,2(1,3-2,4)		(4,4-5,3)	5,8-6,3(5,6-6,5)
	kp/cm ²	500			1150
Overflow delivery	rev/min	55-100(40-110)			55-100(40-110)
	cm ³ /10 s				

2.3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1250-1260 (1230-1280)	0	
		1220	(25,0-35,0)	
		1150-1170	Start	
		1130	58,0-61,0	(57,0-62,0)
		800		(59,0-61,0)
		500	51,5-54,5	(50,5-55,5)
	Stop	1150	0	
Idle stop	Full	370-420 (350-440)	0	
		350	(6,0-14,0)	
		100	mind.90,0	
End stop		220-300		

D3

Angle to the stop-plate	Pre-setting dimensions
Pump $\alpha = 25 \pm 4^\circ$ $\beta = 50 \pm 8^\circ$ $\gamma = 30 - 8^\circ$ $\delta = 60 \pm 8^\circ$	Pump = 4,0 mm Dimension IV = 26,0 mm Dimension V

Testoil-ISO 4113

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 IHC 3,9 n

2. Edition

En

VA 4/100 H 1050 CR 12-4

supersedes 6.78
company IHC
engine D 359

Nozzle-and-holder assembly
1 688 901 020 (172 + 3 bar)

Pre-stroke setting 0,5 mm \pm 0,02 (\pm 0,04)
Plunger lift of 1,0 mm related to outlet "A"

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B
Pre-setting see reverse side

Testoil-ISO 4113

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1 1 Timing device travel	800	3,9-4,9 mm		
1 2 Supply pump pressure	800	4,8-5,3 kp/cm ²		
1 3 Full-load delivery without charge-air pressure	800	72,5-73,5 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1 4 Idle speed regulation	350	15,0-21,0 cm ³ /1000 strokes		3,0
1 5 Start 196 bar	100	mind.85,0 cm ³ /1000 strokes		
1 6 Full-load speed regulation	1100	31,0-39,0 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2 1 Timing device	rev/min	300-450 (270-480)	600	800	880-1030
	mm	Start	2,1-3,1 (1,8-3,4)	(72,2-73,8)	5,2-5,9 (4,9-6,2)
2 2 Supply pump	rev/min	200		800	1050
	kp/cm ²	2,6-3,1 (2,4-3,3)		(4,6-5,5)	5,8-6,3 (5,6-6,5)
Overflow delivery	rev/min	500			1050
	cm ³ /10 s	55-100 (40-110)			55-100 (40-110)

2 3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1140-1200 (1120-1220)	0	
		1100	(30,0-40,0)	
		1050-1070	Start	
		1030	71,0-74,0	(70,0-75,0)
		800		(72,0-74,0)
		500	69,5-72,5	(68,5-73,5)
	Stop	1050	0	
Idle stop	Full	410-480 (390-500)	0	
		350	(14,0-22,0)	
		100	mind.85,0	
End stop		220-320		

Angle to the stop-plate	Pre-setting dimensions
Pump $\alpha = 25 \pm 4^\circ$ $\beta = 40 \pm 8^\circ$ $\gamma = 30 \pm 8^\circ$ $\delta = 60 \pm 8^\circ$	Pump Dimension IV = 4,00 mm Dimension V = 24,65 mm

Testoil-ISO 4113

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 IHC 5,1 h 1

1. Edition

En

VA 6/100 H 1250 CR 80
0 460 306 157

supersedes

company IHC
engine D 310

Nozzle-and-holder assembly
1 688 901 020 (172 + 3 bar)

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B
Pre-setting see reverse side

Pre-stroke setting 0,7 mm \pm 0,04
Plunger lift of 1,0 mm related to outlet "A"

Testoil-ISO 4113

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1.1 Timing device travel	1000	4,0-4,8 mm		
1.2 Supply pump pressure	1000	5,0-5,5 kp/cm ²		
1.3 Full-load delivery without charge-air pressure	700	60,0-61,5 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1.4 Idle speed regulation	450	9,0-15,0 cm ³ /1000 strokes		3,0
1.5 Start 196 bar	100	mind.90,0 cm ³ /1000 strokes		
1.6 Full-load speed regulation	1300	16,0-24,0 cm ³ /1000 strokes		

2. Test Specifications		Checking values in brackets		
2.1 Timing device	rev/min	400-540 (370-570)	1000	1100-1250
	mm	Start	(3,7-5,1)	5,2-5,9 (4,9-6,2)
		200	1000	1250
2.2 Supply pump	rev/min	1,2-1,7 (1,0-1,9)	(4,8-5,7)	5,9-6,4 (5,7-6,6)
	kp/cm ²			
Overflow delivery	rev/min			
	cm ³ /10 s			
2.3 Fuel deliveries				
Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1320-1390 (1300-1410)	0	
		1300	(15,0-25,0)	
		1200	66,0-69,0 (65,0-70,0)	
		700	(60,0-62,0)	
		500	56,0-59,0 (55,0-60,0)	
	Stop	1250	0	
Idle stop	Full	570-630 (550-650)	0	
		450	(8,0-16,0)	
	Start	100	mind.90,0	
End stop		220-300		

Angle to the stop-plate	Pre-setting dimensions
<p>Pump</p> $\alpha = 25 \pm 4^\circ$ $\beta = 45 \pm 8^\circ$ $\gamma = 30 \pm 8^\circ$ $\delta = 60 \pm 8^\circ$	<p>Pump</p> <p>Dimension IV = 1,5 mm</p> <p>Dimension V = 24,6 mm</p>

Testoil-ISO 4113

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 IHC 4,4 d 1

1. Edition

En

VA 4/11 H 1250 CR 93-2
0 460 314 045

supersedes

company

IHC

engine

D 268/510

Nozzle-and-holder assembly
1 688 901 020 (172 + 3 bar)

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B
Pre-setting see reverse side

Pre-stroke setting 0,5 mm
Plunger lift of 1,0 mm related to outlet "A"

Testoil-ISO 4113

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1 1 Timing device travel	1000	6,0-7,0 mm		
1 2 Supply pump pressure	1000	5,5-6,0 kp/cm ²		
1 3 Full-load delivery without charge-air pressure	800	82,0-83,0 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1 4 Idle speed regulation	400	12,0-18,0 cm ³ /1000 strokes		3,0
1 5 Start	100	mind.95,0 cm ³ /1000 strokes		
1 6 Full-load speed regulation	1330	34,0-42,0 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2 1 Timing device	rev/min	500	1000	1250
	mm	0,8-1,8(0,6-2,0)	(5,7-7,3)	7,0-7,7(6,7-8,0)
2 2 Supply pump	rev/min	200	1000	1250
	kp/cm ²	1,5-2,0(1,3-2,2)	(5,3-6,2)	6,2-6,7(6,0-6,9)
Overflow delivery	rev/min	500		1250
	cm ³ /10 s	55-100(40-110)		55-100(40-110)

2 3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1400-1450 (1380-1470)	0	
		1330	(33,0-43,0)	
		1200	82,5-85,5 (81,5-86,5)	
		800	(81,5-83,5)	
		500	76,5-79,5 (75,5-80,5)	
	Stop	1250	0	
Idle stop	Full	470-520 (450-540)	0	
		400	(11,0-19,0)	
	Start	100	mind.95,0	
End stop		220-340		

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Angle to the stop-plate	Pre-setting dimensions
<p>Pump</p> $\alpha = 25 \pm 4^\circ$ $\beta = 36 \pm 8^\circ$ $\gamma = 30 - 8^\circ$ $\delta = 60 \pm 8^\circ$	<p>Pump</p> <p>Dimension IV = - mm</p> <p>Dimension V = - mm</p>

Testoil-ISO 4113

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 IHC 5,8 e 3

1. Edition

En

VA 6/100 H 1250 CR 83
0 460 306 166

supersedes

company

engine

IHC

D 358

Nozzle-and-holder assembly
1 688 901 020 (172 + 3 bar)

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers

Test Instructions and Test Equipment
VDT-WPP 161/4 B

Pre-setting see reverse side

Pre-stroke setting 0,4 mm \pm 0,04
Plunger lift of 1,0 mm related to outlet "A"

Testoil-ISO 4113

1. Settings	rev/min	Settings	Charge air press kp/cm ²	Difference in delivery cm ³
1 1 Timing device travel	800	2,9-3,9 mm		
1 2 Supply pump pressure	800	4,6-5,1 kp/cm ²		
1 3 Full-load delivery without charge-air pressure	1000	72,0-73,0 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1 4 Idle speed regulation	450	17,0-23,0 cm ³ /1000 strokes		3,0
1 5 Start 196 bar	100	mind.85,0 cm ³ /1000 strokes		
1 6 Full-load speed regulation	1300	21,0-29,0 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2 1 Timing device	rev/min	500	800	1100
	mm	0,6-1,6(0,3-1,9)	(2,6-4,2)	4,4-5,4(4,1-5,7)
2 2 Supply pump	rev/min	200	800	1250
	kp/cm ²	1,6-2,1(1,4-2,3)	(4,4-5,3)	6,1-6,6(5,9-6,8)
Overflow delivery	rev/min	500		1250
	cm ³ /10 s	55-100(40-110)		55-100(40-110)

2 3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1330-1380 (1310-1400) 1300 1240-1300 1220 1000 500	0 (20,0-30,0) Start 71,5-74,5 (70,5-75,5) (71,5-73,5) 61,5-64,5 (60,5-65,5)	
	Stop	1250	0	
Idle stop	Full	650-750 (630-770) 450	0 (16,0-24,0)	
	Start	100	mind.85,0	
End stop		220-300		

D11

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Angle to the stop-plate	Pre-setting dimensions
<p>Pump</p> $\alpha = 25 \pm 4^\circ$ $\beta = 50 \pm 8^\circ$ $\gamma = 30 - 8^\circ$ $\delta = 60 \pm 8^\circ$	<p>Pump</p> <p>Dimension IV = 2,0 mm</p> <p>Dimension V = 24,6 mm</p>

Testoil-ISO 4113

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 IHC 5,8 u 2

2. Edition

En

VA 6/10 H 1050 CR 413
CR 413 P
0 460 306 256

supersedes 10.81
company IHC
engine D 358/923

Nozzle-and-holder assembly
1 688 901 020 (172 + 3 bar)

Pre-stroke setting 0,3 mm
Plunger lift of 1,0 mm related to outlet "A"

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B
Pre-setting see reverse side

Testoil-ISO 4113

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1 1 Timing device travel	800	4,1-4,9 mm		
1 2 Supply pump pressure	800	5,0-5,5 kp/cm ²		
1 3 Full-load delivery without charge-air pressure	800	70,0-71,5 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1 4 Idle speed regulation	450	17,0-23,0 cm ³ /1000 strokes		3,0
1 5 Start	100	mind.70,0 cm ³ /1000 strokes		
1 6 Full-load speed regulation	1090	36,0-44,0 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2 1 Timing device	rev/min	--	500	800	1050
	mm	Start	0,8-1,8(0,5-2,1)	(3,8-5,2)	5,2-5,9(4,9-6,2)
2 2 Supply pump	rev/min	200	800	1050	
	kp/cm ²	1,9-2,4(1,7-2,6)	(4,8-5,7)	5,9-6,4(5,7-6,6)	
Overflow delivery	rev/min	500	1050		
	cm ³ /10 s	55-100(40-110)	55-100(40-110)		

2 3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1120-1180 (1100-1200) 1090 1050-1070 1000 800 500	0 (35,0-45,0) Start 71,75-74,25 (70,75-75,25) (70,0-72,0) 69,5-73,5 (68,5-74,5)	
	Stop	1050	0	
Idle stop	Full	550-630 (530-650) 450	0 (16,0-24,0)	
	Start	100	mind.70,0	
End stop		260-360		

D13

043

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Angle to the stop-plate	Pre-setting dimensions
<p>Pump</p> $\alpha = 25 \pm 4^\circ$ $\beta = 45 \pm 8^\circ$ $\gamma = 30 - 8^\circ$ $\delta = 60 + 8^\circ$	<p>Pump</p> <p>Dimension IV = 2,2 mm</p> <p>Dimension V = 24,65 mm</p>

Testoil-ISO 4113

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 IHC 2,9 d

3. Edition

En

VA 3/100 H 1090 CR 43-3

Setting of the pointer at a stroke of 1 mm in
relation to outlet "A".

Nozzle-and-holder assembly
1 688 901 020 (172 + 3 bar)

Pre-stroke setting 0,3 mm \pm 0,02(\pm 0,04)

supersedes 4.79
company IHC
engine D 155

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B
Pre-setting see reverse side

Testoil-ISO 4113

1. Settings	rev/min	Settings	Charge air press kp/cm ²	Difference in delivery cm ³
1 1 Timing device travel	900	4,6-5,4 mm		
1 2 Supply pump pressure	900	4,7-5,2 kp/cm ²		
1 3 Full-load delivery without charge-air pressure	800	72,5-73,5 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	--	--- cm ³ /1000 strokes		
1 4 Idle speed regulation	400	14,0-20,0 cm ³ /1000 strokes		
1 5 Start 196 bar	100	mind.90,0 cm ³ /1000 strokes		
1 6 Full-load speed regulation	1150	36,0-44,0 cm ³ /1000 strokes		

2. Test Specifications		Checking values in brackets		
2 1 Timing device	rev/min	500	900	1090
	mm	1,5-2,5(1,2-2,8)	(4,4-5,6)	5,2-5,9(4,9-6,2)
2 2 Supply pump	rev/min	200	900	1090
	kp/cm ²	1,5-2,0(1,3-2,2)	(4,5-5,4)	5,4-5,9(5,2-6,1)
Overflow delivery	rev/min	500		1090
	cm ³ /10 s	55-100(40-110)		55-100(40-110)
2 3 Fuel deliveries				
Speed control lever:	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1190-1250 (1170-1270)	0	
		1150	(35,0-45,0)	
		1050	75,7-78,3 (74,7-79,3)	
		800	(72,0-74,0)	
		500	70,5-73,5 (69,5-74,5)	
	Stop	1090	0	
Idle stop	Full	480-550 (460-570)	0	
		400	(13,0-21,0)	
	Start	100	mind.90,0	
End stop		220-340		

D15

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D15

Angle to the stop-plate	Pre-setting dimensions
Pump $\alpha = 25 \pm 4^\circ$ $\beta = 48 \pm 8^\circ$ $\gamma = 30 \pm 8^\circ$ $\delta = 60 \pm 8^\circ$	Pump Dimension IV = 1,60 mm Dimension V = 24,65 mm

Testoil-ISO 4113

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 I-C 5,1 b 1

2. Edition

En

VA 6/100 H 1100 CR 37

Setting of the pointer at a stroke of 1 mm in relation to outlet "A".

supersedes 4.73
company IHC
engine D 310

Nozzle-and-holder assembly
1 688 901 020 (172 + 3 bar)

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B
Pre-setting see reverse side

Pre-stroke setting 0,3 mm \pm 0,04

Testoil-ISO 4113

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1.1 Timing device travel	700	2,6-3,4 mm		
1.2 Supply pump pressure	700	5,4-5,9 kp/cm ²		
1.3 Full-load delivery without charge-air pressure	800	59,0-60,0 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1.4 Idle speed regulation	300	7,0-13,0 cm ³ /1000 strokes		3,0
1.5 Start 196 bar	100	mind.95,0 cm ³ /1000 strokes		
1.6 Full-load speed regulation	1150	36,0-44,0 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2.1 Timing device	rev/min	320-420(290-450)	700	900-
	mm	Start	(2,3-3,7)	5,2-5,9(4,9-6,2)
2.2 Supply pump	rev/min	100	700	1100
	kp/cm ²	0,8-1,8(0,6-2,0)	(5,2-6,1)	6,8-7,3(6,6-7,5)
Overflow delivery	rev/min	500		1100
	cm ³ /10 s	55-100(40-110)		55-100(40-110)

2.3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1200-1270 (1180-1290) 1150 1050 800 500	0 (35,0-45,0) 62,5-65,5 (61,5-66,5) (58,0-61,0) 57,5-60,5 (56,5-61,5)	
	Stop	100	mind.95,0	
Idle stop	Full	370-420 (350-440) 300	0 (6,0-14,0)	
End stop	Start	100 220-300	mind.95,0	

D17

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047

Angle to the stop-plate	Pre-setting dimensions
<p>Pump</p> <p>$\alpha = 25 \pm 4^\circ$</p> <p>$\beta = 40 \pm 8^\circ$</p> <p>$\gamma = 30 \pm 8^\circ$</p> <p>$\delta = 60 \pm 8^\circ$</p>	<p>Pump</p> <p>Dimension IV = 4,5 mm</p> <p>Dimension V = 24,6 mm</p>

Testoil-ISO 4113

Test Specifications Distributor-Type Fuel Injection Pump

En

46

WPP 001/4 IHC 5,8 e 2

1. Edition

VA 6/100 H 1050 CR 81
0 460 306 162

supersedes

company

IHC

engine

D 358

Nozzle-and-holder assembly

1 688 901 020 (172 + 3 bar)

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers

Test Instructions and Test Equipment
VDT-WPP 161/4 B

Pre-setting see reverse side

Pre-stroke setting 0,3 mm ± 0,04

Plunger lift of 1,0 mm related to outlet "A"

Testoil-ISO 4113

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1 1 Timing device travel	800	3,7-4,7 mm		
1 2 Supply pump pressure	800	6,0-6,5 kp/cm ²		
1 3 Full-load delivery without charge-air pressure	700	69,5-70,5 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1 4 Idle speed regulation	350	7,0-13,0 cm ³ /1000 strokes		3,0
1 5 Start 196 bar	100	mind.85,0 cm ³ /1000 strokes		
1 6 Full-load speed regulation	1130	26,0-34,0 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2 1 Timing device	rev/min	250-400(220-430)	800	950-1070
	mm	Start	(3,4-5,0)	5,1-5,8(4,8-6,1)
2 2 Supply pump	rev/min	200	800	1050
	kp/cm ²	2,5-3,0(2,3-3,2)	(5,8-6,7)	6,9-7,4(6,7-7,6)
Overflow delivery	rev/min	500		1050
	cm ³ /10 s	55-100(40-110)		55-100(40-110)

2 3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1160-1220 (1140-1240)	0	
		1130	(25,0-35,0)	
		1000	70,0-73,0 (69,0-74,0)	
		700	(69,0-71,0)	
		500	65,0-68,0 (64,0-69,0)	
	Stop	1050	0	
Idle stop	Full	480-550 (460-570)	0	
		350	(6,0-14,0)	
	Start	100	mind.85,0	
End stop		220-300		

D19

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Angle to the stop-plate	Pre-setting dimensions
<p>Pump</p> $\alpha = 25 \pm 4^\circ$ $\beta = 45 \pm 8^\circ$ $\gamma = 30 \pm 8^\circ$ $\delta = 60 \pm 8^\circ$	<p>Pump</p> <p>Dimension IV= 4,5 mm</p> <p>Dimension V= 24,6 mm</p>

Testoil-ISO 4113

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 STE 4,0 a

3. Edition

En

VA 4/90 H 1200 CR 144-2
0 460 394 042

supersedes 4.80
company Steyr
engine WD 411.41

Nozzle-and-holder assembly
1 688 901 020 (172 + 3 bar)

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B
Pre setting see reverse side

Pre-stroke setting 0,3 mm \pm 0,02 (\pm 0,04)

Testoil-ISO 4113

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1 1 Timing device travel	1000	3,9-4,7 mm		
1 2 Supply pump pressure	1000	5,1-5,6 kp/cm ²		
1 3 Full-load delivery without charge-air pressure	900	55,5-57,5 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1 4 Idle speed regulation	300	13,0-19,0 cm ³ /1000 strokes		3,0
1 5 Start	100	mind. 70,0 cm ³ /1000 strokes		
1 6 Full-load speed regulation	1280	23,0-31,0 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2 1 Timing device	rev/min	700	1000	1200
	mm	0,8-1,8(0,5-2,1)	(3,6-5,0)	5,8-6,6(5,5-6,9)
2 2 Supply pump	rev/min	200	1000	1200
	kp/cm ²	1,2-1,7(1,0-1,9)	(4,9-5,8)	6,0-6,5(5,8-6,7)
Overflow delivery	rev/min	500		1200
	cm ³ /10 s	55-100(40-110)		55-100(40-110)

2 3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1330-1380 (1310-1400)	0	
		1280	(22,0-32,0)	
		1150	59,5-60,5 (59,0-61,0)	
		900	(54,5-58,5)	
		500	48,5-51,5 (47,5-52,5)	
	Stop	1200	0	
Idle stop	Full	420-470 (400-490)	0	
		300	(12,0-20,0)	
End stop	Start	100	mind. 70,0	
		150-250		

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Angle to the stop-plate	Pre-setting dimensions
<p>Pump $\alpha = 25 \pm 4^\circ$ $\beta = 45 \pm 8^\circ$ $\gamma = 30 \pm 8^\circ$ $\delta = 60 \pm 8^\circ$</p>	<p>Pump Dimension IV = 4,60 mm Dimension V = 24,65 mm</p>

Testoil-ISO 4113

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 STE 4,0 c

2. Edition

En

VA 4/100 H 1200 CR 145-3
0 460 304 235

supersedes 3.77
company Steyr
engine WD 412.41

Nozzle-and-holder assembly
1 688 901 020 (172 + 3 bar)

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B
Pre-setting see reverse side

Pre-stroke setting 0,3 mm \pm 0,02 (\pm 0,04)

Testoil-ISO 4113

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1 1 Timing device travel	1000	6,8-7,6 mm		
1 2 Supply pump pressure	1000	5,0-5,3 kp/cm ²		
1 3 Full-load delivery without charge-air pressure	1230	80,0-81,0 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1 4 Idle speed regulation	300	10,0-16,0 cm ³ /1000 strokes		3,0
1 5 Start	100	mind. 80,0 cm ³ /1000 strokes		
1 6 Full-load speed regulation	1320	36,0-44,0 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2 1 Timing device	rev/min	300-450 (270-480)	1000	1130-1270
	mm	Start	(6,5-7,9)	8,9-9,6 (8,6-9,9)
2 2 Supply pump	rev/min	200	1000	1200
	kp/cm ²	1,3-1,8 (1,1-2,0)	(4,8-5,7)	5,8-6,3 (5,6-6,5)
Overflow delivery	rev/min	500		1200
	cm ³ /10 s	55-100 (40-110)		55-100 (40-110)

2 3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1360-1410 (1340-1430) 1320 1260-1290 1230 900 500	0 (35,0-45,0) Start (79,5-81,5) 79,0-81,0 (78,0-82,0) 77,5-80,5 (76,5-81,5)	
	Stop	1200	0	
Idle stop	Full	360-410 (340-430) 300	0 (9,0-17,0)	
	Start	100	mind. 80,0	
End stop		120-220		

D23

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Angle to the stop-plate	Pre-setting dimensions
<p>Pump $\alpha = 25 \pm 4^\circ$ $\beta = 40 \pm 8^\circ$ $\gamma = 30 - 8^\circ$ $\delta = < 68^\circ$</p>	<p>Pump Dimension IV = 1,80 mm Dimension V = 24,65 mm</p>

Testoil-ISO 4113

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 STE 3,1 a

2. Edition

En

VA 4/100 H 1200 CR 145-4
0 460 304 237

supersedes 4.77
company Steyr
engine WD 408.43

Nozzle-and-holder assembly
1 688 901 020 (172 + 3 bar)

Pre-stroke setting 0,3 mm \pm 0,02 (\pm 0,04)

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B
Pre-setting see reverse side

Testoil-ISO 4113

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1 1 Timing device travel	1000	3,4-4,2 mm		
1 2 Supply pump pressure	1000	4,7-5,2 kp/cm ²		
1 3 Full-load delivery without charge-air pressure	1180	65,0-66,0 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	-	-- cm ³ /1000 strokes		
1 4 Idle speed regulation	250	12,0-18,0 cm ³ /1000 strokes		3,0
1 5 Start	100	mind. 80,0 cm ³ /1000 strokes		
1 6 Full-load speed regulation	1270	36,0-44,0 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2 1 Timing device	rev/min	480-630(450-660)	1000	1140-1300
	mm	Start	(3,1-4,5)	5,1-5,8(4,8-6,1)
2 2 Supply pump	rev/min	200	1000	1200
	kp/cm ²	1,2-1,7(1,0-1,9)	(4,5-5,4)	5,5-6,0(5,3-6,2)
Overflow delivery	rev/min	500		1200
	cm ³ /10 s	55-100(40-110)		55-100(40-110)

2 3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1320-1370 (1300-1390) 1270 1220-1260 1180 900 500	0 (35,0-45,0) Start (64,5-66,5) 69,0-71,0 (68,0-72,0) 62,0-65,0 (61,0-66,0)	
	Stop	1200	0	
Idle stop	Full	330-380 (310-400) 250	0 (11,0-19,0)	
	Start	100	mind. 80,0	
End stop		120-220		

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E1

E1

Angle to the stop-plate	Pre-setting dimensions
<p>Pump</p> $\alpha = 25 \pm 4^\circ$ $\beta = 40 \pm 8^\circ$ $\gamma = 30 \pm 8^\circ$ $\delta = 60 \pm 8^\circ$	<p>Pump</p> <p>Dimension IV = 3,40 mm</p> <p>Dimension V = 24,65 mm</p>

Testoil-ISO 4113

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 STE 4,0 d

3. Edition

En

VA 4/10 H 1200 CR 145-5
0 460 304 246

supersedes 3.80
company Steyr
engine WD 411.85

Nozzle-and-holder assembly
1 688 901 020 (172 + 3 bar)

Pre-stroke setting 0,3 mm \pm 0,02 (\pm 0,04)

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B
Pre-setting see reverse side

Testoil-ISO 4113

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1 1 Timing device travel	1000	5,7-6,5 mm		
1 2 Supply pump pressure	1000	5,0-5,5 kp/cm ²		
1 3 Full-load delivery without charge-air pressure	1180	68,0-69,0 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1 4 Idle speed regulation	350	10,0-16,0 cm ³ /1000 strokes		3,0
1 5 Start	100	mind.70,0 cm ³ /1000 strokes		
1 6 Full-load speed regulation	1280	31,0-39,0 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2 1 Timing device	rev/min	600	1000	1200
	mm	1,4-2,2(1,1-2,5)	(5,4-6,8)	7,7-8,4(7,3-8,7)
2 2 Supply pump	rev/min	200	1000	1200
	kp/cm ²	1,1-1,6(0,9-1,8)	(4,8-5,7)	5,8-6,3(5,6-6,5)
Overflow delivery	rev/min	500		1200
	cm ³ /10 s	55-100(40-110)		55-100(40-110)

2 3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1330-1380 (1310-1400)	0	
		1280	(30,0-40,0)	
		1180	(67,5-69,5)	
		1000	71,5-73,5 (70,5-74,5)	
		500	62,5-65,5 (61,5-66,5)	
	Stop	1200	0	
Idle stop	Full	470-530 (450-550)	0	
		350	(9,0-17,0)	
	Start	100	mind.70,0	
End stop		120-220		

E3

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E3

Angle to the stop-plate	Pre-setting dimensions
<p>Pump</p> $\alpha = 25 \pm 4^\circ$ $\beta = 36 \pm 8^\circ$ $\gamma = 30 - 8^\circ$ $\delta = 60 + 8^\circ$	<p>Pump</p> <p>Dimension IV = 4,00 mm</p> <p>Dimension V = 24,65 mm</p>

Testoil-ISO 4113

E4

En

E4

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 PER 5,8 a

5. Edition

En

VA 6/110 H 1300 CL 179
0 460 316 017

supersedes 5.76
company Perkins
engine T 6 354

Nozzle-and-holder assembly
1 588 901 020 (172 + 3 bar)

Pre-stroke setting 0,3 mm \pm 0,02 (\pm 0,04)
Plunger lift of 1,0 mm related to outlet "A"

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B
Pre-setting see reverse side

Testoil-ISO 4113

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1.1 Timing device travel	500	4,6-5,2 mm	0	
1.2 Supply pump pressure	500	4,5-5,0 kp/cm ²	0	
1.3 Full-load delivery without charge-air pressure	500	87,0-88,0 cm ³ /1000 strokes	0	2,5
Full-load delivery with charge-air pressure	900	98,5-99,5 cm ³ /1000 strokes	0,4	
1.4 Idle speed regulation	400	9,5-15,5 cm ³ /1000 strokes	0	3,0
1.5 Start	100	mind.100,0 cm ³ /1000 strokes	0	
1.6 Full-load speed regulation	1450	47,0-53,0 cm ³ /1000 strokes	0,4	

2. Test Specifications

Checking values in brackets

2.1 Timing device	rev/min	Start				
	mm	140-240(110-270)	300	500	650	680-750
		1,3-2,3(1,0-2,6)	(4,3-5,5)	6,1-7,1(5,8-7,4)	7,0-7,7(6,7-8,0)	
2.2 Supply pump	rev/min	200		500		1300
	kp/cm ²	2,5-3,0(2,3-3,2)		(4,3-5,2)		6,8-7,3(6,6-7,5)
Overflow delivery	rev/min	500				1300
	cm ³ /10 s	55-100(40-110)				55-100(40-110)

2.3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1730-1875	0	0,4
		1550	max.12,0	0,4
		1450	47,0-53,0 (46,0-54,0)	0,4
		1300	102-104 (101-105)	0,4
		900	(98,0-100,0)	0,4
		750	mind.96,5	0,4
		500	(86,5-88,5)	0
	Stop	1300	0	
Idle stop	Full	500-580 (480-600)	0	
		400	(8,5-16,5)	
	Start	100	mind.100,0	
End stop		100-200		

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E5

E5

Angle to the stop-plate	Pre-setting dimensions
<p>Pump</p> <p>$\alpha = 25 \pm 4^\circ$</p> <p>$\beta = 55 \pm 8^\circ$</p> <p>γ</p> <p>δ</p>	<p>Pump</p> <p>Dimension IV = 0,6 mm</p> <p>Dimension V = 24,6 mm</p>

Testoil-ISO 4113

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 IHC 3,9 r

2. Edition

En

VA 4/10 H 1150 CR 69-5

0 460 304 249

Setting of the pointer at a stroke of 1 mm in relation to outlet "A".

Nozzle-and-holder assembly
1 688 901 020 (172 + 3 bar)

supersedes 7.81

company IHC

engine D 239

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers

Test Instructions and Test Equipment
VDT-WPP 161/4 B

Pre-setting see reverse side

Pre-stroke setting 0,5 mm ± 0,02 (± 0,04)

Testoil-ISO 4113

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1.1 Timing device travel	800	3,5-4,3 mm		
1.2 Supply pump pressure	800	5,6-6,1 kp/cm ²		
1.3 Full-load delivery without charge-air pressure	800	76,5-77,5 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1.4 Idle speed regulation	350	18,0-23,0 cm ³ /1000 strokes		3,0
1.5 Start 196 bar	100	mind.85,0 cm ³ /1000 strokes		
1.6 Full-load speed regulation	1220	36,0-44,0 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2.1 Timing device	rev/min	400	800	1150
	mm	0,6-1,6(0,3-1,9)	(3,2-4,6)	4,7-5,4(4,4-5,7)
2.2 Supply pump	rev/min	200	800	1150
	kp/cm ²	2,6-3,1(2,4-3,3)	(5,4-6,3)	6,8-7,3(6,6-7,5)
Overflow delivery	rev/min	500		1150
	cm ³ /10 s	55-100(40-110)		55-100(40-110)

2.3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1260-1310 (1240-1330)	0	
		1220	(35,0-45,0)	
		1130	73,5-76,5 (72,5-75,0)	
		800	(76,0-78,0)	
		500	72,5-75,5 (71,5-76,5)	
	Stop	1150	0	
Idle stop	Full	450-500 (430-520)	0	
		350	(17,0-24,0)	
	Start	100	mind.85,0	
End stop		220-340		

E7

E7

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Angle to the stop-plate	Pre-setting dimensions
Pump $\alpha = 25 \pm 4^\circ$ $\beta = 48 \pm 8^\circ$ $\gamma = 30 \pm 8^\circ$ $\delta = 60 \pm 8^\circ$	Pump Dimension IV = 4,00 mm Dimension V = 24,65 mm

Testoil-ISO 4113

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 IHC 3,9 p

2. Edition

En

VA 4/10 H 1150 CR 69-7

0 460 304 251

Setting of the pointer at a stroke of 1 mm in
relation to outlet "A".

Nozzle-and-holder assembly
1 688 901 020 (172 + 3 bar)

supersedes 7.80
company IHC
engine D 239

Pre-stroke setting 0,5 mm \pm 0,02 (\pm 0,04)

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B
Pre-setting see reverse side

Testoil-ISO 4113

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1 1 Timing device travel	800	3,1-3,9 mm		
1 2 Supply pump pressure	800	5,7-6,2 kp/cm ²		
1 3 Full-load delivery without charge-air pressure	800	68,0-69,0 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1 4 Idle speed regulation	350	17,0-23,0 cm ³ /1000 strokes		3,0
1 5 Start 196 bar	100	mind.90,0 cm ³ /1000 strokes		
1 6 Full-load speed regulation	1220	33,0-41,0 cm ³ /1000 strokes		

2. Test Specifications		Checking values in brackets		
2 1 Timing device	rev/min	500	800	1150
	mm	1,0-2,0(0,7-2,3)	(2,8-4,2)	4,7-5,4(4,4-5,7)
2 2 Supply pump	rev/min	200	800	1150
	kp/cm ²	2,5-3,0(2,3-3,2)	(5,5-6,4)	7,2-7,7(7,0-7,9)
Overflow delivery	rev/min	500		1150
	cm ³ /10 s	55-100(40-110)		55-100(40-110)

2 3 Fuel deliveries				
Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1240-1290 (1220-1310)	0	
		1220	(32,0-42,0)	
		1100	74,5-77,5 (73,5-78,5)	
		800	(67,5-69,5)	
		500	62,0-66,0 (61,0-67,0)	
	Stop	1150	0	
Idle stop	Full	420-470 (400-490)	0	
		350	(16,0-24,0)	
End stop	Start	100	mind.90,0	
		220-340		

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E9

E9

Angle to the stop-plate	Pre-setting dimensions
<p>Pump $\alpha = 25 \pm 4^\circ$ $\beta = 46 \pm 8^\circ$ $\gamma = 30 \pm 8^\circ$ $\delta = 60 \pm 8^\circ$</p>	<p>Pump Dimension IV = 2,60 mm Dimension V = 24,65 mm</p>

Testoil-ISO 4113

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 IHC 5,8 p 2

3. Edition

En

VA 6/100 H 1250 CR 195
CR 195 P

supersedes

company IHC

engine

Nozzle-and-holder assembly
1 688 901 020 (172 + 3 bar)

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B
Pre-setting see reverse side

Pre-stroke setting 0,3 mm
Plunger lift of 1,0 mm related to outlet "A"

Testoil-ISO 4113

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1 1 Timing device travel	1000	4,0-5,0 mm		
1 2 Supply pump pressure	800	4,6-5,1 kp/cm ²		
1 3 Full-load delivery without charge-air pressure	800	73,0-74,0 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1 4 Idle speed regulation	350	12,0-18,0 cm ³ /1000 strokes		3,0
1 5 Start	100	mind.90,0 cm ³ /1000 strokes		
1 6 Full-load speed regulation	1330	31,0-39,0 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2 1 Timing device	rev/min	--	500	1000
	mm	Start	1,0-2,0(0,7-2,3)	(3,7-5,3)
2 2 Supply pump	rev/min	200	800	1250
	kp/cm ²	1,7-2,2(1,4-2,5)	(4,4-5,3)	6,2-6,7(6,0-6,9)
Overflow delivery	rev/min	500		1250
	cm ³ /10 s	55-100(40-110)		55-100(40-110)

2 3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1380-1450 (1360-1470) 1330 1260-1280 1220 800 500	0 (30,0-40,0) Start 76,5-79,5 (75,5-80,5) (72,5-74,5) 68,5-71,5 (67,5-78,5)	
	Stop	1250	0	
Idle stop	Full	480-550 (460-570) 350	0 (11,0-19,0)	
	Start	100	mind.90,0	
End stop		260-360		

E11

E 11

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Testoil-ISO 4113

Angle to the stop-plate	Pre-setting dimensions
<p>Pump $\alpha = 25 \pm 4^\circ$ $\beta = 55 \pm 8^\circ$ $\gamma = 30 \pm 8^\circ$ $\delta = 60 \pm 3^\circ$</p>	<p>Pump Dimension IV = 2,80 mm Dimension V = 24,65 mm</p>

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 STE 4,0a 3

1. Edition

En

VA 4/90 H 1200 CR 164
0 460 394 010

supersedes
company **Steyr**
WD 408.40
engine

Nozzle-and-holder assembly
1 688 901 020 (172 + 3 bar)

Pre-stroke setting 0,3 mm \pm 0,02 (\pm 0,04)

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B
Pre-setting see reverse side

Testoil-ISO 4113

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1.1 Timing device travel	900	2,2-3,0 mm		
1.2 Supply pump pressure	900	4,8-5,3 kp/cm ²		
1.3 Full-load delivery without charge-air pressure	1200	62,0-63,0 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1.4 Idle speed regulation	300	10,0-16,0 cm ³ /1000 strokes		3,0
1.5 Start	100	mind.75,0 cm ³ /1000 strokes		
1.6 Full-load speed regulation	1280	31,0-39,0 cm ³ /1000 strokes		

2. Test Specifications

Clamping values in brackets

2.1 Timing device	rev/min	590-700 (560-730)	900	920-1050
	mm	Start	(1,9-3,3)	2,9-3,6 (2,6-3,9)
2.2 Supply pump	rev/min	200	900	1200
	kp/cm ²	1,5-2,0 (1,3-2,2)	(4,6-5,5)	5,6-6,1 (5,4-6,3)
Overflow delivery	rev/min	500		1200
	cm ³ /10 s	55-100 (40-110)		55-100 (40-110)

2.3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1330-1400 (1310-1420)	0	
		1280	(30,0-40,0)	
		1230-1250	Start	
		1200	(61,5-63,5)	
		900	60,0-62,0 (59,0-63,0)	
		500	56,0-60,0 (55,0-61,0)	
	Stop	1200	0	
Idle stop	Full	400-470 (380-490)	0	
		300	(9,0-17,0)	
		100	mind.75,0	
End stop		130-230		

E13

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Angle to the stop-plate	Pre-setting dimensions
<p>Pump $\alpha = 25 \pm 4^\circ$ $\beta = 45 \pm 8^\circ$ $\gamma = 30 \pm 8^\circ$ $\delta = 60 \pm 8^\circ$</p>	<p>Pump Dimension IV = 3,5 mm Dimension V = 24,6 mm</p>

Testoil-ISO 4113

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 IHC 2,4 a 2

1. Edition

En

VA 3/100 H 950 CR 43

Setting of the pointer at a stroke of 1 mm in relation to outlet "A".

Nozzle-and-holder assembly
1 688 901 020 (172 + 3 bar)

supersedes

company

IHC

engine

D 155

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B

Pre-setting see reverse side

Pre-stroke setting 0,3 mm \pm 0,04

Testoil-ISO 4113

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1 1 Timing device travel	500	2,8-3,6 mm		
1 2 Supply pump pressure	500	4,3-4,8 kp/cm ²		
1 3 Full-load delivery without charge-air pressure	800	59,0-60,0 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	-	-- cm ³ /1000 strokes		
1 4 Idle speed regulation	400	9,5-15,5 cm ³ /1000 strokes		3,0
1 5 Start 196 bar	100	mind.90,0 cm ³ /1000 strokes		
1 6 Full-load speed regulation	1000	33,5-41,5 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2 1 Timing device	rev/min	120-250(90-280)	300	500	800-950
	min	Start	0,8-1,8(0,5-2,1)	(2,5-3,9)	4,7-5,4(4,4-5,7)
2 2 Supply pump	rev/min	200		500	950
	kp/cm ²	2,3-2,8(2,1-3,0)		(4,1-5,0)	6,0-6,5(5,8-6,7)
Overflow delivery	rev/min	500			950
	cm ³ /10 s	55-100(40-110)			55-100(40-110)

2 3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1040-1090 (1020-1110)	0	
		1000	(32,5-42,5)	
		970-990	Start	
		930	60,5-63,5 (59,5-64,5)	
		800	(58,5-60,5)	
		500	54,5-57,5 (53,5-58,5)	
	Stop	950	0	
Idle stop	Full	430-480 (410-500)	0	
		400	(8,5-16,5)	
		100	mind.90,0	
End stop		220-300		

E15

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E15

Angle to the stop-plate	Pre-setting dimensions
<p>Pump</p> $\alpha = 25 \pm 4^\circ$ $\beta = 40 \pm 8^\circ$ $\gamma = 30 \pm 8^\circ$ $\delta = 60 \pm 8^\circ$	<p>Pump</p> <p>Dimension IV = 1,0 mm</p> <p>Dimension V = 24,6 mm</p>

Testoil-ISO 4113

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 STE 3,0 a

2. Edition

VA 4/90 H 1200 CR 144-1
G 460 394 035

supersedes 4.77
company Steyr
engine WD 408.42

Nozzle-and-holder assembly
1 688 901 020 (172 + 3 bar)

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B
Pre-setting see reverse side

Pre-stroke setting 0,3 mm \pm 0,02 (\pm 0,04)

Testoil-ISO 4113

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1 1 Timing device travel	1000	4,7-5,5 mm		
1 2 Supply pump pressure	1000	5,1-5,6 kp/cm ²		
1 3 Full-load delivery without charge-air pressure	1150	57,5-58,5 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1 4 Idle speed regulation	250	12,0-18,0 cm ³ /1000 strokes		3,0
1 5 Start	100	mind. 70,0 cm ³ /1000 strokes		
1 6 Full-load speed regulation	1280	21,0-29,0 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2 1 Timing device	rev/min	470-620(440-650)	1000	1150-1300
	mm	Start	(4,4-5,8)	7,0-7,7(6,7-8,0)
2 2 Supply pump	rev/min	200	1000	1200
	kp/cm ²	1,5-2,0(1,3-2,2)	(4,9-5,8)	5,9-6,4(5,7-6,6)
Overflow delivery	rev/min	500		1200
	cm ³ /10 s	55-100(40-110)		55-100(40-110)

2 3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1310-1350 (1290-1370)	0	
		1280	(20,0-30,0)	
		1210-1240	Start	
		1150	(57,0-59,0)	
		900	56,0-58,0 (55,0-59,0)	
		500	49,0-52,0 (48,0-53,0)	
	Stop	1200	0	
Idle stop	Full	340-390 (320-410)	0	
		250	(11,0-19,0)	
		100	mind. 70,0	
End stop		120-220		

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E17

E17

Angle to the stop-plate	Pre-setting dimensions
<p>Pump</p> $\alpha = 25 \pm 4^\circ$ $\beta = 45 \pm 8^\circ$ $\gamma = 30 - 8^\circ$ $\delta = < 68^\circ$	<p>Pump</p> <p>Dimension IV = 3,60 mm</p> <p>Dimension V = 24,65 mm</p>

Testoil-ISO 4113

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 FIA 2,3 b 1

2. Edition

En

VA 3/110 H 1100 CL 134-3

0 460 313 013

Setting of the pointer at a stroke of 1 mm in
relation to outlet "A".

Nozzle-and-holder assembly
1 688 901 20 (172 + 3 bar)

supersedes 7.71
company Fiat
engine 853

Pre-stroke setting 0,7 mm \pm 0,02 (\pm 0,04)

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B
Pre-setting see reverse side

Testoil-ISO 4113

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1 1 Timing device travel	800	5,2-6,0 mm		
1 2 Supply pump pressure	800	5,0-5,5 kp/cm ²		
1 3 Full-load delivery without charge-air pressure	800	62,5-63,5 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1 4 Idle speed regulation	300	17,0-23,0 cm ³ /1000 strokes		3,0
1 5 Start	100	mind.120,0 cm ³ /1000 strokes		
1 6 Full-load speed regulation	1150	36,0-44,0 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2 1 Timing device	rev/min	300-450 (270-420)	800	1000-1100
	mm	Start	(4,9-6,3)	8,0-8,7 (7,7-9,0)
2 2 Supply pump	rev/min	200	800	1100
	kp/cm ²	1,6-2,1 (1,4-2,3)	(4,7-5,8)	6,3-6,8 (6,0-7,1)
Overflow delivery	rev/min	500		1100
	cm ³ /10 s	55-100 (40-110)		55-100 (40-110)

2 3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1210-1260 (1190-1280)	0	
		1150	(35,0-45,0)	
		1100	57,5-60,5 (56,5-61,5)	
		800	(62,0-64,0)	
		500	56,0-60,0 (55,0-61,0)	
	Stop	1100	0	
Idle stop	Full	350-400 (330-380)	0	
		300	(16,0-24,0)	
		100	mind.120,0	
End stop		110-230		

E19

Angle to the stop-plate	Pre-setting dimensions
<p>Pump</p> $\alpha = 25 \pm 4^\circ$ $\beta = 40 \pm 8^\circ$ $\gamma = 30 \pm 8^\circ$ $\delta = 60 \pm 8^\circ$	<p>Pump</p> <p>Dimension IV = 3,0 mm</p> <p>Dimension V = 24,6 mm</p>

Testoil-ISO 4113

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 D00 4,8 a

2. Edition

En

VA 6/110 H 1400 CR 166
0 460 316 014

supersedes 7.73
company van Doorne
engine 44 475

Nozzle-and-holder assembly
1 688 901 020 (172 + 3 bar)

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B
Pre-setting see reverse side

Pre-stroke setting 0,5 mm \pm 0,02 (\pm 0,04)

Testoil-ISO 4113

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1 1 Timing device travel	1000	5,5-6,5 mm		
1 2 Supply pump pressure	1000	5,3-5,8 kp/cm ²		
1 3 Full-load delivery without charge-air pressure	1000	53,5-54,5 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1 4 Idle speed regulation	250	9,0-15,0 cm ³ /1000 strokes		3,0
1 5 Start	100	mind. 110,0 cm ³ /1000 strokes		
1 6 Full-load speed regulation	1470	31,0-39,0 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2 1 Timing device	rev/min	270-420 (240-450)	1000	1250-1400
	mm	Start	(5,2-6,8)	7,8-8,5 (7,5-8,8)
2 2 Supply pump	rev/min	200	1000	1400
	kp/cm ²	1,6-2,1 (1,4-2,3)	(5,1-6,0)	6,7-7,2 (6,5-7,4)
Overflow delivery	rev/min	500		1400
	cm ³ /10 s	55-100 (40-110)		55-100 (40-110)

2 3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1500-1570 (1480-1590)	0	
		1470	(30,0-40,0)	
		1350	52,5-55,5 (51,5-56,5)	
		1000	(53,0-55,0)	
		500	49,5-52,5 (48,5-53,5)	
	Stop	1400	0	
Idle stop	Full	270-320 (250-340)	0	
		250	(8,0-16,0)	
		100	mind. 110,0	
End stop		110-210		

E21

E2A

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Angle to the stop-plate	Pre-setting dimensions
<p>Pump</p> $\alpha = 25 \pm 4^\circ$ $\beta = 55 \pm 8^\circ$ $\gamma = 30 \pm 8^\circ$ $\delta = 60 \pm 8^\circ$	<p>Pump</p> <p>Dimension IV 2,6 mm</p> <p>Dimension V= 24,6 mm</p>

Testoil-ISO 4113

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/FIA 2.3 b 2

1. Edition

En

VA 3/100 H 1200 CL 134-4
0 460 313 014

supersedes

company

Fiat

engine

853-10

Nozzle-and-holder assembly
1 688 901 020 (172 + 3 bar)

Pre-stroke setting 0,7 mm \pm 0,02 (\pm 0,04) Einstellung des

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B

Pre-setting see reverse side

Testoil-ISO 4113

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1 1 Timing device travel	800	45,5-46,5 mm		
1 2 Supply pump pressure	800	4,8-5,3 kp/cm ²		
1 3 Full-load delivery without charge-air pressure	800	66,0-67,0 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1 4 Idle speed regulation	300	17,0-23,0 cm ³ /1000 strokes		3,0
1 5 Start	100	mind.120,0 cm ³ /1000 strokes		
1 6 Full-load speed regulation	1300	36,0-44,0 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2 1 Timing device	rev/min	300-450 (270-480)	800	1100-1230
	mm	Start	(4,25-4,95)	8,9-9,6 (8,6-9,9)
2 2 Supply pump	rev/min	200	800	1200
	kp/cm ²	1,9-2,4 (1,7-2,6)	(4,6-5,5)	6,8-7,3 (6,6-7,5)
Overflow delivery	rev/min	500		1100
	cm ³ /10 s	55-100 (40-110)		55-100 (40-110)

2 3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1350-1430 (1330-1410)	0	
		1300	(35,0-45,0)	
		1180	60,5-63,5 (59,5-64,5)	
		800	(65,5-67,5)	
		500	59,0-63,0 (58,0-64,0)	
	Stop	1200	0	
Idle stop	Full	330-390 (310-410)	0	
		300	(16,0-24,0)	
		100	mind.120,0	
End stop		110-230		

E23

E23

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Angle to the stop-plate	Pre-setting dimensions
<p>Pump</p> $\alpha = 25 \pm 4^\circ$ $\beta = 40 \pm 8^\circ$ $\gamma = 30 - 8^\circ$ $\delta = 60 + 8^\circ$	<p>Pump</p> <p>Dimension IV = 3,5 mm</p> <p>Dimension V = 24,6 mm</p>

Testoil-ISO 4113

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/FIA 2,6 b

3. Edition

En

VA 3/110 H 1300 CL 134-8 Nozzle-and-holder assembly
0 460 313 018 1 688 901 020 (172 + 3 bar)

Setting of the pointer at a stroke of 1 mm in
relation to outlet "A".

Pre-stroke setting 0,5 mm \pm 0,02 (\pm 0,04)

supersedes 6.79
company Fiat
engine 8035-02202

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B
Pre-setting see reverse side

Testoil-ISO 4113

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1 1 Timing device travel	900	4,7-5,5 mm		
1 2 Supply pump pressure	900	4,6-5,1 kp/cm ²		
1 3 Full-load delivery without charge-air pressure	800	68,5-69,5 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1 4 Idle speed regulation	300	21,0-27,0 cm ³ /1000 strokes		3,0
1 5 Start	100	mind.110,0 cm ³ /1000 strokes		
1 6 Full-load speed regulation	1400	31,0-39,0 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2.1 Timing device	rev/min	500	900	1100
	mm	1,2-2,2(0,9-2,5)	(4,4-5,8)	6,0-6,7(5,7-7,0)
2.2 Supply pump	rev/min	200	900	1300
	kp/cm ²	1,7-2,2(1,5-2,4)	(4,4-5,3)	5,7-6,2(5,5-6,4)
Overflow delivery	rev/min	500		1300
	cm ³ /10 s	55-100(40-110)		55-100(40-110)

2.3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1500-1550 (1480-1570)	0	
		1400	(30,0-40,0)	
		1280	65,0-68,0 (64,0-69,0)	
		800	(68,0-70,0)	
		500	60,5-63,5 (59,5-64,5)	
	Stop	1300	0	
Idle stop	Full	420-470 (400-490)	0	
		300	(20,0-28,0)	
	Start	100	mind.110,0	
End stop		110-230		

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Angle to the stop plate	Pre-setting dimensions
Pump $\alpha = 25 \pm 4^\circ$ $\beta = 45 \pm 8^\circ$ $\gamma = 30 \pm 8^\circ$ $\delta = 60 \pm 8^\circ$	Pump Dimension IV = 0,60 mm Dimension V = 29,15 mm

Testoil-ISO 4113

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 FIA 2,3 a 1

2. Edition

VA 4/110 H 1200 CL 136 Nozzle-and-holder assembly
0 460 314 016 1 688 901 020 (172 + 3 bar)

Setting of the pointer at a stroke of 1 mm in
relation to outlet "A".

supersedes 7.71
company Fiat
engine 8045

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B
Pre-setting see reverse side

Pre-stroke setting 0,5 mm \pm 0,02 (\pm 0,04)

Testoil-ISO 4113

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1.1 Timing device travel	800	3,7-4,5 mm		
1.2 Supply pump pressure	800	5,3-5,8 kp/cm ²		
1.3 Full-load delivery without charge-air pressure	800	63,0-64,0 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1.4 Idle speed regulation	300	17,0-23,0 cm ³ /1000 strokes		3,0
1.5 Start	100	mind.130,0 cm ³ /1000 strokes		
1.6 Full-load speed regulation	1270	36,0-44,0 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2.1 Timing device	rev/min	220-370 (190-400)	800	1100-1230
	mm	Start	(3,4-4,8)	6,1-6,8 (5,8-7,1)
2.2 Supply pump	rev/min	200	800	1200
	kp/cm ²	1,6-2,1 (1,4-2,3)	(5,1-6,0)	6,8-7,3 (6,6-7,5)
Overflow delivery	rev/min	500		1200
	cm ³ /10 s	55-100 (40-110)		55-100 (40-110)

2.3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1320-1370 (1300-1390)	0	
		1270	(35,0-45,0)	
		1180	60,0-63,0 (60,0-69,0)	
		800	(62,5-64,5)	
		500	59,5-62,5 (58,5-63,5)	
	Stop	1200	0	
Idle stop	Full	300-400 (280-420)	0	
		300	(16,0-24,0)	
	Start	100	mind.130,0	
End stop		110-230		

F3

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Angle to the stop-plate	Pre-setting dimensions
<p>Pump</p> $\alpha = 25 \pm 4^\circ$ $\beta = 33 \pm 8^\circ$ $\gamma = 30 - 8^\circ$ $\delta = 60 + 8^\circ$	<p>Pump</p> <p>Dimension IV = 3,0 mm</p> <p>Dimension V = 24,6 mm</p>

Testoil-ISO 4113

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 FIA 2,3 a 4

1. Edition

En

VA 4/110 H 1100 CL 136-1
0 460 314 017

supersedes

company

Fiat

engine

845-010

Nozzle-and-holder assembly
1 688 901 020 (172 + 3 bar)

Pre-stroke setting 0,5 mm \pm 0,02 (\pm 0,04)
Plunger lift of 1,0 mm related to outlet "A"

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B
Pre-setting see reverse side

Testoil-ISO 4113

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1 1 Timing device travel	800	3,7-4,5 mm		
1 2 Supply pump pressure	800	5,3-5,8 kp/cm ²		
1 3 Full-load delivery without charge-air pressure	800	59,0-60,0 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1 4 Idle speed regulation	300	17,0-23,0 cm ³ /1000 strokes		3,0
1 5 Start	100	mind.130,0 cm ³ /1000 strokes		
1 6 Full-load speed regulation	1160	31,0-39,0 cm ³ /1000 strokes		

2. Test Specifications		Checking values in brackets		
2 1 Timing device	rev/min	220-370(190-400)	800	970-1100)
	mm	Start	(3,4-4,8)	5,2-5,9(4,9-6,2)
2 2 Supply pump	rev/min	200	800	
	kp/cm ²	1,6-2,1(1,4-2,3)	(5,1-6,0)	
Overflow delivery	rev/min	500		1100
	cm ³ /10 s	55-100(40-110)		55-100(40-110)
2 3 Fuel deliveries				
Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1210-1260 (1190-1280)	0	
		1160	(30,0-40,0)	
		1080	56,5-59,5 (55,5-60,5)	
		800	(58,5-60,5)	
		400	54,5-56,5 (53,5-57,5)	
	Stop	1100	0	
Idle stop	Full	390-410 (370-430)	0	
		300	(16,0-24,0)	
End stop	Start	100	mind.130,0	
		110-230		

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F5

Angle to the stop-plate	Pre-setting dimensions
<p>Pump</p> $\alpha = 25 \pm 4^\circ$ $\beta = 35 \pm 8^\circ$ $\gamma = 30 - 8^\circ$ $\delta = 60 + 8^\circ$	<p>Pump</p> <p>Dimension IV = 2,5 mm</p> <p>Dimension V = 24,6 mm</p>

Testoil-ISO 4113

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 IHC 5,3 c 2

1. Edition

En

VA 4/100 H 1150 CR 46

0 460 304 200

Setting of the pointer at a stroke of 1 mm in relation to outlet "A".

supersedes

IHC

company

engine

D 206

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B

Pre-setting see reverse side

Pre-stroke setting- 0,5 mm \pm 0,04

Testoil-ISO 4113

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1 1 Timing device travel	800	3,1-4,1 mm		
1 2 Supply pump pressure	800	5,3-5,8 kp/cm ²		
1 3 Full-load delivery without charge-air pressure	800	60,0-61,0 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1 4 Idle speed regulation	360	12,0-18,0 cm ³ /1000 strokes		3,0
1 5 Start 196 bar	100	mind.85,0 cm ³ /1000 strokes		
1 6 Full-load speed regulation	1220	26,0-34,0 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2 1 Timing device	rev/min	250-400(220-430)	500	800	950-1100
mm	Start	1,0-2,0(0,7-2,3)	(2,8-4,4)	4,7-5,4(4,4-5,7)	
2 2 Supply pump	rev/min	200	800	1150	
kp/cm ²		2,1-2,6(1,9-2,8)	(5,1-6,0)	6,7-7,3(6,5-7,5)	
Overflow delivery	rev/min	500	1150		
cm ³ /10 s		55-100(40-110)	55-100(40-110)		

2 3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1260-1310 (1240-1330)	0	
		1220	(25,0-35,0)	
		1150-1180	Start	
		1100	61,5-64,5 (60,5-65,5)	
		800	(59,5-61,5)	
		500	50,0-53,0 (49,0-54,0)	
	Stop	1150	0	
Idle stop	Full	480-500 (460-520)	0	
		360	(11,0-19,0)	
	Start	100	mind.85,0	
End stop		--		

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F7

F7

Testoil-ISO 4113

Angle to the stop-plate	Pre-setting dimensions
<p>Pump</p> <p>$\alpha = 25 \pm 4^\circ$</p> <p>$\beta = 36 \pm 8^\circ$</p> <p>$\gamma = 30 \pm 8^\circ$</p> <p>$\delta = 60 \pm 8^\circ$</p>	<p>Pump</p> <p>Dimension IV = 3,0 mm</p> <p>Dimension V = 24,6 mm</p>

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 IHC 5,1 c 2

En 2. Edition

VA 6/100 H 1100 CR 21-6

supersedes 11.75
company IHC
engine D 310

Nozzle-and-holder assembly
1 688 901 020 (172 + 3 bar)

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B
Pre-setting see reverse side

Testoil-ISO 4113

Pre-stroke setting 0 mm
Plunger lift of 1,0 mm related to outlet "A"

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1 1 Timing device travel	800	3,0-4,0 mm		
1 2 Supply pump pressure	800	4,8-5,3 kp/cm ²		
1 3 Full-load delivery without charge-air pressure	800	65,5-66,5 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1 4 Idle speed regulation	400	12,0-18,0 cm ³ /1000 strokes		3,0
1 5 Start	100	mind.90,0 cm ³ /1000 strokes		
1 6 Full-load speed regulation	1170	32,0-38,0 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2 1 Timing device	rev/min	400-520(370-550)	600	800	950-1060
	mm	Start	1,0-2,0(0,7-2,3)	(2,7-4,3)	5,2-5,9(4,9-6,2)
2 2 Supply pump	rev/min	200		800	1100
	kp/cm ²	1,7-2,2(1,5-2,4)		(4,6-5,5)	5,8-6,3(5,6-6,5)
Overflow delivery	rev/min	500			1100
	cm ³ /10 s	55-100(40-110)			55-100(40-110)

2 3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1200-1250 (1180-1270)	0	
		1170	(31,0-39,0)	
		1130-1150	Start	
		1100	59,5-62,5	(58,5-63,5)
		800		(65,0-67,0)
		500	57,5-60,5	(56,5-61,5)
	Stop	1100	0	
Idle stop	Full	520-580 (500-600)	0	
		400	(11,0-19,0)	
		100	mind.90,0	
End stop		220-320		

F9

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Testoil-ISO 4113

Angle to the stop-plate	Pre-setting dimensions
<p>Pump</p> $\alpha = 25 \pm 4^\circ$ $\beta = 40 \pm 8^\circ$ $\gamma = 30 \pm 8^\circ$ $\delta = 60 \pm 8^\circ$	<p>Pump</p> <p>Dimension IV = 4,4 mm</p> <p>Dimension V = 26,0 mm</p>

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 IHC 4,4 e

2. Edition

En

VA 4/11 H 1150 CR 412
0 460 314 043

supersedes 3.81

company IHC

engine D 268/620 W

Nozzle-and-holder assembly
1 688 901 020 (172 + 3 bar)

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B
Pre-setting see reverse side

Testoil-ISO 4113

Pre-stroke setting 0  mm

Plunger lift of 1,0 mm related to outlet "A"

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1.1 Timing device travel	900	5,2-6,0 mm		
1.2 Supply pump pressure	900	5,4-5,9 kp/cm ²		
1.3 Full-load delivery without charge-air pressure	800	78,5-79,5 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1.4 Idle speed regulation	350	12,0-18,0 cm ³ /1000 strokes		3,0
1.5 Start	100	mind.130,0 cm ³ /1000 strokes		
1.6 Full-load speed regulation	1200	36,0-44,0 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2.1 Timing device	rev/min	--	600	900	1150
	mm	Start	1,8-2,8(1,5-3,1)	(4,9-6,3)	6,1-6,8(5,8-7,1)
2.2 Supply pump	rev/min		200	900	1150
	kp/cm ²		1,6-2,1(1,4-2,3)	(5,2-6,1)	6,3-6,8(6,1-7,0)
Overflow delivery	rev/min		500		1150
	cm ³ /10 s		55-100(40-110)		55-100(40-110)

2.3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1220-1270 (1200-1290)	0	
		1200		(35,0-45,0)
		1100	80,5-83,5	(79,5-84,5)
		800		(78,0-80,0)
		500	75,5-79,5	(74,5-80,5)
	Stop	1150	0	
Idle stop	Full	420-480 (400-500)	0	
		350		(11,0-19,0)
		100	mind.130,0	
End stop		260-360		

F11

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Angle to the stop-plate	Pre-setting dimensions
Pump $\alpha = 25 \pm 4^\circ$ $\beta = 40 \pm 8^\circ$ $\gamma = 30 \pm 8^\circ$ $\delta = 60 \pm 8^\circ$	Pump Dimension IV = 4,0 mm Dimension V = 24,65mm

Testoil-ISO 4113

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 IHC 5,8 q 3

1. Edition

En

VA 6/11 H 1200 CR 407
CR 407 P
0 460 316 039

supersedes

company IHC
engine DT 358/130 HP

Nozzle-and-holder assembly
1 688 901 020 (172 + 3 bar)

Pre-stroke setting 0,5 mm
Plunger lift of 1,0 mm related to outlet "A"

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B
Pre-setting see reverse side

Testoil-ISO 4113

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1.1 Timing device travel	800	4,1-5,1 mm		
1.2 Supply pump pressure	800	5,0-5,5 kp/cm ²		
1.3 Full-load delivery without charge-air pressure	800	90,5-91,5 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1.4 Idle speed regulation	350	12,0-18,0 cm ³ /1000 strokes		3,0
1.5 Start	100	mind.90,0 cm ³ /1000 strokes		
1.6 Full-load speed regulation	1260	41,0-49,0 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2.1 Timing device	rev/min	-- 500 800 1200
mm	Start	0,7-1,7(0,4-2,0) (3,8-5,4) 7,0-7,7(6,7-8,0)
2.2 Supply pump	rev/min	200 800 1200
kp/cm ²	1,5-2,1(1,3-2,3)	(4,8-5,7) 6,7-7,2(6,5-7,4)
Overflow delivery	rev/min	500 1200
cm ³ /10 s	55-100(40-110)	55-100(40-110)

2.3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1320-1370 (1300-1390)	0	
		1260	(40,0-50,0)	
		1180	86,5-89,5 (85,5-90,5)	
		800	(90,0-92,0)	
		500	86,0-89,0 (85,0-90,0)	
	Stop	1200	0	
Idle stop	Full	480-530 (460-550)	0	
		350	(11,0-19,0)	
		100	mind.90,0	
End stop		260-360		

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Angle to the stop-plate	Pre-setting dimensions
Pump $\alpha = 25 \pm 4^\circ$ $\beta = 40 \pm 8^\circ$ $\gamma = 30 \pm 8^\circ$ $\delta = 60 \pm 8^\circ$	Pump Dimension IV = - mm Dimension V = 24,65mm

Testoil-ISO 4113

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 IHC 5,8 q 4

1. Edition

En

VA 6/10 H 1200 CR 408
CR 408 P

supersedes

company

engine

IHC
D 358

Nozzle-and-holder assembly
1 688 901 020 (172 + 3 bar)

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B
Pre-setting see reverse side

Pre-stroke setting 0,3 mm
Plunger lift of 1,0 mm related to outlet "A"

Testoil-ISO 4113

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1 1 Timing device travel	1000	4,1-4,9 mm		
1 2 Supply pump pressure	1000	5,7-6,2 kp/cm ²		
1 3 Full-load delivery without charge-air pressure	800	73,5-74,5 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1 4 Idle speed regulation	350	12,0-18,0 cm ³ /1000 strokes		3,0
1 5 Start	100	mind.90,0 cm ³ /1000 strokes		
1 6 Full-load speed regulation	1280	28,0-36,0 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2 1 Timing device	rev/min	--	600	1000	1200
	mm	Start	1,3-2,3(1,0-2,6)	(3,8-5,2)	5,2-5,9(4,9-6,2)
2 2 Supply pump	rev/min	200		1000	1200
	kp/cm ²	1,7-2,2(1,4-2,5)		(5,5-6,4)	6,4-6,9(6,2-7,1)
Overflow delivery	rev/min	500			1200
	cm ³ /10 s	55-100(40-110)			55-100(40-110)

2 3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1320-1380 (1300-1400) 1280 1150 800 500	0 (27,0-37,0) (75,0-80,0) (73,0-75,0) (67,5-72,5) 76,0-79,0 68,5-71,5	
	Stop	1200	0	
Idle stop	Full	500-550 (480-570) 350	0 (11,0-19,0)	
End stop	Start	100 260-360	mind.90,0	

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8.81

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Angle to the stop-plate	Pre-setting dimensions
<p>Pump</p> $\alpha = 25 \pm 4^\circ$ $\beta = 52 \pm 8^\circ$ $\gamma = 30 - 8^\circ$ $\delta = 60 + 8^\circ$	<p>Pump</p> <p>Dimension IV = - mm</p> <p>Dimension V = 24,65 mm</p>

Testoil-ISO 4113

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 STE 2,6 a

2. Edition

VA 3(10 H 1200 CR 411
0 460 303 158

supersedes 5.80
company Steyr
engine W0 311.40

Nozzle-and-holder assembly
1 688 901 020 (172 + 3 bar)

Pre-stroke setting 0,5 mm \pm 0,02 (\pm 0,04)

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B
Pre-setting see reverse side

Testoil-ISO 4113

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1 1 Timing device travel	1000	5,6-6,6 mm		
1 2 Supply pump pressure	1000	5,2-5,7 kp/cm ²		
1 3 Full-load delivery without charge-air pressure	1150	65,5-66,5 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1 4 Idle speed regulation	300	12,0-18,0 cm ³ /1000 strokes		3,0
1 5 Start	100	mind.70,0 cm ³ /1000 strokes		
1 6 Full-load speed regulation	1300	36,0-44,0 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2 1 Timing device	rev/min	--	700	1000
	mm	Start	2,7-3,7(2,4-4,0)	(5,3-6,9)
2 2 Supply pump	rev/min	200	1000	1200
	kp/cm ²	1,4-1,9(1,2-2,1)	(5,0-5,9)	5,9-6,4(5,7-6,6)
Overflow delivery	rev/min	500		1200
	cm ³ /10 s	55-100(40-110)		55-100(40-110)

2 3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1360-1410 (1340-1430)	0	
		1300	(35,0-45,0)	
		1150	(65,0-67,0)	
		1000	68,5-70,5 (67,5-71,5)	
		500	54,5-57,5 (53,5-58,5)	
	Stop	1200	0	
Idle stop	Full	380-430 (360-450)	0	
		300	(11,0-19,0)	
	Start	100	mind.70,0	
End stop		120-220		

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10.81

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Angle to the stop-plate	Pre-setting dimensions
<p>Pump</p> $\alpha = 25 \pm 4^\circ$ $\beta = 44 \pm 8^\circ$ $\gamma = 30 - 8^\circ$ $\delta = 60 + 8^\circ$	<p>Pump</p> <p>Dimension IV = 4,00 mm</p> <p>Dimension V = 24,65 mm</p>

Testoil-ISO 4113

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 IHC 5,1 1

3. Edition

VA 6/100 H 1200 CR 51

0 460 306 204

Setting of the pointer at a stroke of 1 mm in
relation to outlet "A".

Nozzle-and-holder assembly
1 688 901 020 (172 + 3 bar)

supersedes 12.77
company IHC
engine D 310

Pre-stroke setting 0,3 mm ± 0,04

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDI-WPP 161/4 B
Pre-setting see reverse side

Testoil-ISO 4113

1. Settings	rev/min	Settings	Charge air press kp/cm ²	Difference in delivery cm ³
1 1 Timing device travel	1000	2,5-3,5 mm		
1 2 Supply pump pressure	1000	5,4-5,9 kp/cm ²		
1 3 Full-load delivery without charge-air pressure	800	60,0-61,0 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1 4 Idle speed regulation	300	12,0-18,0 cm ³ /1000 strokes		3,0
1 5 Start	100	mind.80,0 cm ³ /1000 strokes		
1 6 Full-load speed regulation	1250	33,0-41,0 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2 1 Timing device	rev/min	450-600(430-620)	700	1000	1050-1200
	mm	Start	0,7-1,7(0,4-2,0)	(2,2-3,8)	3,4-4,1(3,1-4,4)
2 2 Supply pump	rev/min	200		100	1200
	kp/cm ²	1,1-1,6(0,9-1,8)		(5,2-6,1)	6,2-6,7(6,0-6,9)
Overflow delivery	rev/min	500			1200
	cm ³ /10 s	55-100(40-110)			55-100(40-110)

2.3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge air pressure kp/cm ²
End stop	Full	1310-1360 (1290-1380) 1250 1200-1220 1150 800 500	0 (32,0-42,0) Start 61,0-64,0 (60,0-65,0) (59,5-61,5) 52,0-55,0 (51,0-56,0)	
	Stop	1200	0	
Idle stop	Full	360-410 (340-430) 300	0 (11,0-19,0)	
End stop	Start	220-320		

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F10

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Angle to the stop-plate	Pre-setting dimensions
Pump $\alpha = 25 \pm 4^\circ$ $\beta = 40 \pm 8^\circ$ $\gamma = 30 \pm 8^\circ$ $\delta = 60 \pm 8^\circ$	Pump Dimension IV = 3,6 mm Dimension V = 24,6 mm

Testoil-ISO 4113

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 IHC 5,1 d 1

3. Edition

En

VA 6/10 H 1200 CR 44-1
0 460 306 186

Nozzle-and-holder assembly
1 688 901 020 (172 + 3 bar)

supersedes 12.79
company IHC
engine D 310

Setting of the pointer at a stroke of 1 mm in
relation to outlet "A".

Pre-stroke setting 0,3 mm \pm 0,02 (\pm 0,04)

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B
Pre-setting see reverse side

Testoil-ISO 4113

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1.1 Timing device travel	800	4,6-5,6 mm		
1.2 Supply pump pressure	800	5,1-5,6 kp/cm ²		
1.3 Full-load delivery without charge-air pressure	800	62,5-63,5 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1.4 Idle speed regulation	450	13,0-19,0 cm ³ /1000 strokes		3,0
1.5 Start 196 bar	100	mind.75,0 cm ³ /1000 strokes		
1.6 Full-load speed regulation	1270	21,0-29,0 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2.1 Timing device	rev/min	130-280(100-310)	400	800	1000-1150
	mm	Start	2,2-3,2(1,9-3,5)	(4,3-5,9)	6,1-6,8(5,8-7,1)
2.2 Supply pump	rev/min	200		800	1200
	kp/cm ²	2,5-3,0(2,3-3,2)		(4,9-5,8)	6,1-6,6(5,9-6,8)
Overflow delivery	rev/min	500			1200
	cm ³ /10 s	55-100(40-110)			55-100(40-110)

2.3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1280-1320 (1260-1340) 1270 1220-1250 1150 800 500	0 (20,0-30,0) Start 63,5-66,5 (62,5-67,5) (62,0-64,0) 56,5-59,5 (55,5-60,5)	
	Stop	1200	0	
Idle stop	Full	530-590 (520-610) 450	0 (12,0-20,0)	
	Start	100	mind.75,0	
End stop		220-320		

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F21

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Angle to the stop-plate	Pre-setting dimensions
<p>Pump</p> <p>$\alpha = 25 \pm 4^\circ$</p> <p>$\beta = 50 \pm 8^\circ$</p> <p>$\gamma = 30 \pm 8^\circ$</p> <p>$\delta = 60 \pm 8^\circ$</p>	<p>Pump</p> <p>Dimension IV = 2,40 mm</p> <p>Dimension V = 24,65 mm</p>

Testoil-ISO 4113

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 IHC 5,1 f 1

2. Edition

VA 6/100 H 1350 CR 49-1 Nozzle-and-holder assembly
0 460 306 189 1 688 901 020 (172 + 3 bar)
Setting of the pointer at a stroke of 1 mm in
relation to outlet "A".

supersedes 3.76
company IHC
engine D 310

Pre-stroke setting 0,5 mm \pm 0,04

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B
Pre-setting see reverse side

Testoil-ISO 4113

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1.1 Timing device travel	700	4,1-5,1 mm		
1.2 Supply pump pressure	700	5,3-5,8 kp/cm ²		
1.3 Full-load delivery without charge-air pressure	800	62,0-63,0 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1.4 Idle speed regulation	550	9,0-15,0 cm ³ /1000 strokes		3,0
1.5 Start 196 bar	100	mind. 70,0 cm ³ /1000 strokes		
1.6 Full-load speed regulation	1440	31,0-39,0 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2.1 Timing device	rev/min	150-300 (120-330)	350	700	1100-1250
	mm	Start	1,3-2,3 (1,0-2,6)	(3,8-5,4)	7,0-7,7 (6,7-8,0)
		200		700	1350
2.2 Supply pump	rev/min	2,9-3,4 (2,7-3,6)		(5,1-6,0)	7,2-7,7 (7,0-7,9)
	kp/cm ²	500			1350
Overflow delivery	rev/min	55-100 (40-110)			55-100 (40-110)
	cm ³ /10 s				

2.3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1510-1560 (1490-1580) 1440 1360-1390 1300 800 500	0 (30,0-40,0) Start 63,0-66,0 (62,0-67,0) (61,5-63,5) 55,5-58,5 (54,5-59,5)	
	Stop	1350	0	
Idle stop	Full	600-670 (580-690) 550	0 (8,0-16,0)	
	Start	100	mind. 70,0	
End stop		220-320		

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F23

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Angle to the stop-plate	Pre-setting dimensions
Pump $\alpha = 25 \pm 4^\circ$ $\beta = 45 \pm 8^\circ$ $\gamma = 30 \pm 8^\circ$ $\delta = 60 \pm 8^\circ$	Pump Dimension IV = 2,60 mm Dimension V = 24,65 mm

Testoil-ISO 4113

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 IHC 2,4 d

2. Edition

En

VA 3/100 H 1025 CR 43-2 . 1 688 901 020 (172 + 3 bar)
Setting of the pointer at a stroke of 1 mm in
relation to outlet "A".

supersedes 3.77
company IHC
engine D 155

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B
Pre-setting see reverse side

Pre-stroke setting 0,3 mm ± 0,04

Testoil-ISO 4113

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1.1 Timing device travel	500	2,8-3,6 mm		
1.2 Supply pump pressure	800	5,4-5,9 kp/cm ²		
1.3 Full-load delivery without charge-air pressure	800	58,5-59,5 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1.4 Idle speed regulation	400	7,0-13,0 cm ³ /1000 strokes		3,0
1.5 Start	100	mind.90,0 cm ³ /1000 strokes		
1.6 Full-load speed regulation	1070	26,0-34,0 cm ³ /1000 strokes		

2. Test Specifications		Checking values in brackets			
2.1 Timing device	rev/min	120-250(90-280)	300	500	800-950
	mm	Start	0,8-1,8(0,5-2,1)	(2,5-3,9)	4,7-5,4(4,4-5,7)
2.2 Supply pump	rev/min	200	800	1025	
	kp/cm ²	2,3-2,8(2,1-3,0)	5,4-5,9(5,2-6,1)	6,2-6,7(6,0-6,9)	
Overflow delivery	rev/min	500		1025	
	cm ³ /10 s	55-100(40-110)		55-100(40-110)	
2.3 Fuel deliveries					
Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²	
End stop	Full	1100-1150 (1080-1170)	0	(25,0-35,0)	
		1070			
		1020-1040	Start		
		1000	57,0-60,0		
		800			
		500	51,5-54,5		
	Stop	1025	0		
Idle stop	Full	430-480 (410-500)	0	(6,0-14,0)	
		400			
	Start	100	mind.90,0		
End stop		220-320			

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GA

G1

Angle to the stop-plate	Pre-setting dimensions
α = $25 \pm 4^\circ$ β = $40 \pm 8^\circ$ γ = $30 \pm 8^\circ$ δ = $60 \pm 3^\circ$	Pump = 1,6 mm Dimension IV = 24,6 mm Dimension V

Testoil-ISO 4113

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 IHC 5,8 m 1

2. Edition

En

VA 6/10 H 1100 CR 87-2
0 460 306 248

supersedes 10.79
company IHC
engine D 358

Nozzle-and-holder assembly
1 688 901 020 (172 + 3 bar)

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B
Pre-setting see reverse side

Pre-stroke setting 0 mm

Plunger lift of 1,0 mm related to outlet "A"

Testoil-ISO 4113

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1 1 Timing device travel	700	3,8-4,6 mm		
1 2 Supply pump pressure	700	4,8-5,3 kp/cm ²		
1 3 Full-load delivery without charge-air pressure	800	67,5-68,5 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1 4 Idle speed regulation	400	9,5-15,5 cm ³ /1000 strokes		3,0
1 5 Start 196 bar	100	mind.80,0 cm ³ /1000 strokes		
1 6 Full-load speed regulation	1150	33,5-41,5 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2 1 Timing device	rev/min	400	700	800-950
	mm	0,8-1,8(0,5-2,1)	(3,5-4,9)	5,2-5,9(4,9-6,2)
2 2 Supply pump	rev/min	200	700	1100
	kp/cm ²	2,2-2,7(2,0-2,9)	(4,6-5,5)	6,2-6,7(6,0-6,9)
Overflow delivery	rev/min	500		1100
	cm ³ /10 s	55-100(40-110)		55-100(40-110)

2 3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1190-1240 (1170-1260)	0	
		1150	(32,5-42,5)	
		1050	68,0-71,0 (67,0-72,0)	
		800	(67,0-69,0)	
		500	66,0-70,0 (65,0-71,0)	
	Stop	1100	0	
Idle stop	Full	480-530 (460-550)	0	
		400	(8,5-16,5)	
	Start	100	mind.80,0	
End stop		220-320		

G3

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Angle to the stop-plate	Pre-setting dimensions
Pump $\alpha = 25 \pm 4^\circ$ $\beta = 40 \pm 8^\circ$ $\gamma = 30 - 8^\circ$ $\delta = 60 \pm 8^\circ$	Pump Dimension IV = 3,00 mm Dimension V = 24,65 mm

Testoil-ISO 4113

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 IHC 4,4 d

2. Edition

En

VA 4/11 H 1200 CR 93-1
0 460 314 041

supersedes 6.79
company IHC
engine D 268

Nozzle-and-holder assembly
1 688 901 020 (172 + 3 bar)

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B
Pre-setting see reverse side

Pre-stroke setting 0,5 mm \pm 0,02 (\pm 0,04)
Plunger lift of 1,0 mm related to outlet "A"

Testoil-ISO 4113

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1.1 Timing device travel	700	4,8-5,8 mm		
1.2 Supply pump pressure	700	4,6-5,1 kp/cm ²		
1.3 Full-load delivery without charge-air pressure	800	77,5-78,5 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1.4 Idle speed regulation	400	11,0-17,0 cm ³ /1000 strokes		3,0
1.5 Start 196 bar	100	mind.95,0 cm ³ /1000 strokes		
1.6 Full-load speed regulation	1280	34,0-42,0 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2.1 Timing device	rev/min	400	700	770-920
	mm	1,2-2,2(0,9-2,5)	(4,5-6,1)	6,1-6,8(5,8-7,1)
2.2 Supply pump	rev/min	200	700	1200
	kp/cm ²	1,7-2,2(1,5-2,4)	(4,4-5,3)	6,6-7,1(6,4-7,3)
Overflow delivery	rev/min	500		1200
	cm ³ /10 s	55-100(40-110)		55-100(40-110)

2.3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1330-1380 (1310-1400) 1280 1150 800 500	0 (33,0-43,0) (79,0-84,0) (77,0-79,0) (73,0-78,0) 80,0-83,0 74,0-77,0	
	Stop	1200	0	
Idle stop	Full	460-530 (440-550) 400	0 (10,0-18,0)	
	Start	100	mind.95,0	
End stop		220-340		

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G5

Angle to the stop-plate	Pre-setting dimensions
<p>Pump</p> <p>$\alpha = 25 \pm 4^\circ$</p> <p>$\beta = 36 \pm 8^\circ$</p> <p>$\gamma = 30 - 8^\circ$</p> <p>$\delta = 60 \pm 8^\circ$</p>	<p>Pump</p> <p>Dimension IV = 1,60 mm</p> <p>Dimension V = 24,65 mm</p>

Testoil-ISO 4113

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 IHC 5,1 k

2. Edition
En

VA 6/100 H 1150 CR 79-1
0 460 306 222

supersedes 3.77
company IHC
engine D 310-X 55

Nozzle-and-holder assembly
1 688 901 020 (172 + 3 bar)

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B
Pre-setting see reverse side

Testoil-ISO 4113

Pre-stroke setting 0,4 mm ± 0,04
Plunger lift of 1,0 mm related to outlet "A"

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1.1 Timing device travel	1000	3,9-4,9 mm		
1.2 Supply pump pressure	1000	5,8-6,3 kp/cm ²		
1.3 Full-load delivery without charge-air pressure	1000	66,0-67,0 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1.4 Idle speed regulation	450	17,0-23,0 cm ³ /1000 strokes		3,0
1.5 Start	100	mind.75,0 cm ³ /1000 strokes		
1.6 Full-load speed regulation	1250	31,0-39,0 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2.1 Timing device	rev/min	600	1000	1250
	mm	1,3-2,3(1,0-2,6)	(3,6-5,2)	5,2-5,9(4,9-6,2)
2.2 Supply pump	rev/min	200	1000	1150
	kp/cm ²	2,0-2,5(1,8-2,7)	(5,6-6,5)	6,3-6,8(6,1-7,0)
Overflow delivery	rev/min	500		1150
	cm ³ /10 s	55-100(40-110)		55-100(40-110)

2.3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1300-1350 (1280-1370)	0	
		1250	(30,0-40,0)	
		1120	65,0-67,0 (64,0-68,0)	
		1000	(65,5-67,5)	
		500	56,5-59,5 (55,5-60,5)	
	Stop	1150	0	
Idle stop	Full	530-590 (510-610)	0	
		450	(16,0-24,0)	
	Start	100	mind.75,0	
End stop		220-320		

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Angle to the stop-plate	Pre-setting dimensions
<p>Pump</p> $\alpha = 25 \pm 4^\circ$ $\beta = 35 \pm 8^\circ$ $\gamma = 30 - 8^\circ$ $\delta = 60 \pm 8^\circ$	<p>Pump = 4,0 mm</p> <p>Dimension IV = 24,6 mm</p>

Testoil-ISO 4113

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 IHC 2,9 b 2

1. Edition

En

VA 3/100 H 1090 CR 11-2
Setting in accordance with WPP 161/4,1st.
Supplement plunger lift 1.0 mm
referenced to outlet "A".

Nozzle-and-holder assembly
1 688 901 020 (172 + 3 bar)

supersedes

company

engine

IHC

D 179 tractor 553

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B

Pre-setting see reverse side

Testoil-ISO 4113

Pre-stroke setting 0 mm

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1 1 Timing device travel	700	3,3-4,1 mm		
1 2 Supply pump pressure	700	4,5-5,0 kp/cm ²		
1 3 Full-load delivery without charge-air pressure	800	66,5-67,5 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1 4 Idle speed regulation	400	12,0-18,0 cm ³ /1000 strokes		3,0
1 5 Start 196 bar	100	mind.90,0 cm ³ /1000 strokes		
1 6 Full-load speed regulation	1150	36,0-44,0 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2 1 Timing device	rev/min	300-450(270-480)	500	700	850-1000
	mm	Start	0,8-1,8(0,5-2,1)	(3,0-4,4)	5,2-5,9(4,9-6,2)
2 2 Supply pump	rev/min	200		700	1090
	kp/cm ²	2,0-2,5(1,8-2,7)		(4,3-5,2)	6,0-6,5(5,8-6,7)
Overflow delivery	rev/min	500			1090
	cm ³ /10 s	55-100(40-110)			55-100(40-110)
2 3 Fuel deliveries					
Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²	
End stop	Full	1180-1250 (1160-1270)	0		
		1150	(35,0-45,0)		
		1050	73,0-76,0		
		800	(66,0-68,0)		
		500	63,5-66,5		
			(62,5-67,5)		
Idle stop	Full	470-550 (450-570)	0		
		400	(11,0-19,0)		
End stop	Start	100	mind.90,0		
		220-300			

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Angle to the stop-plate	Pre-setting dimensions
Pump $\alpha = 25 \pm 4^\circ$ $\beta = 40 \pm 8^\circ$ $\gamma = 30 \pm 8^\circ$ $\delta = 60 \pm 8^\circ$	Pump = 4,6 mm Dimension IV = 24,6 mm Dimension V = 24,6 mm

Testoil-ISO 4113

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 IHC 5,8 m

2. Edition

En

VA 6/100 H 1100 CR 87-1
0 460 306 220

Nozzle-and-holder assembly
1 688 901 020 (172 + 3 bar)

supersedes 12.77
company IHC
engine D 358

Pre-stroke setting 0 mm
Plunger lift of 1,0 mm related to outlet "A"

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B
Pre-setting see reverse side

Testoil-ISO 4113

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1.1 Timing device travel	700	3,9-4,7 mm		
1.2 Supply pump pressure	700	4,8-5,3 kp/cm ²		
1.3 Full-load delivery without charge-air pressure	800	68,5-69,5 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1.4 Idle speed regulation	400	9,5-15,5 cm ³ /1000 strokes		3,0
1.5 Start	100	mind.80,0 cm ³ /1000 strokes		
1.6 Full-load speed regulation	1150	41,0-49,0 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2.1 Timing device	rev/min	400	700	800-950
	mm	0,8-1,8(0,5-2,1)	(3,6-5,0)	5,2-5,9(4,9-6,2)
2.2 Supply pump	rev/min	200	700	1100
	kp/cm ²	2,3-2,8(2,1-3,0)	(4,6-5,5)	6,2-6,7(6,0-6,9)
Overflow delivery	rev/min	500		1100
	cm ³ /10 s	55-100(40-110)		55-100(40-110)

2.3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1220-1270 (1200-1290)	0	
		1150	(40,0-50,0)	
		1080	71,5-73,5 (70,5-74,5)	
		800	(68,0-70,0)	
		500	65,0-68,0 (64,0-69,0)	
	Stop	1100	0	
Idle stop	Full	500-550 (480-570)	0	
		400	(8,5-16,5)	
	Start	100	mind.80,0	
End stop		220-320		

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Angle to the stop-plate	Pre-setting dimensions
<p>Pump $\alpha = 25 \pm 4^\circ$ $\beta = 40 \pm 8^\circ$ $\gamma = 30 - 8^\circ$ $\delta = 60 \pm 8^\circ$</p>	<p>Pump Dimension IV = 3,00 mm Dimension V = 24,65 mm</p>

Testoil-ISO 4113

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 GUL 4,7 b 1

1. Edition

En

VA 6/100 H 1000 BR 140-2
0 460 306 062

supersedes

company Guldner

engine 6 L 79-60 PS

Nozzle-and-holder assembly
1 688 901 020 (172 + 3 bar)

Pre-stroke setting 0,1 mm
Plunger lift of 1,0 mm related to outlet "A"

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B
Pre-setting see reverse side

Testoil-ISO 4113

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1 1 Timing device travel	700	6,8-7,8 mm		
1 2 Supply pump pressure	700	4,4-4,9 kp/cm ²		
1 3 Full-load delivery without charge-air pressure	800	49,5-50,5 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1 4 Idle speed regulation	250	10,0-16,0 cm ³ /1000 strokes		3,0
1 5 Start	100	mind. 70,0 cm ³ /1000 strokes		
1 6 Full-load speed regulation	1030	26,0-34,0 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2 1 Timing device	rev/min	220-380(190-410)	700	840-980
	mm	Start	(6,5-8,1)	9,7-10,4(9,4-10,7)
2 2 Supply pump	rev/min	100	700	1000
	kp/cm ²	1,0-1,5(0,8-1,7)	(4,2-5,1)	5,5-6,0(5,3-6,2)
Overflow delivery	rev/min	500		1000
	cm ³ /10 s	mind. 25		55-125(40-140)

2 3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1050-1090 (1020-1120)	0	
		1030	(25,0-35,0)	
		950	49,0-51,0 (48,0-52,0)	
		800	(49,0-51,0)	
		500	40,5-43,5 (39,5-44,5)	
	Stop	1000	0	
Idle stop	Full	280-340 (260-360)	0	
		250	(9,0-17,0)	
	Start	100	mind. 70,0	
End stop		130-230		

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Angle to the stop-plate	Pre-setting dimensions
<p>Pump</p> <p>$\alpha = 25 \pm 4^\circ$</p> <p>$\beta = 44 \pm 8^\circ$</p> <p>$\gamma = 30 \pm 8^\circ$</p> <p>$\delta = 60 \pm 8^\circ$</p>	<p>Pump</p> <p>Dimension IV = 1,0 mm</p> <p>Dimension V = - mm</p>

Testoil-ISO 4113

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 GUL 4,7 b

3. Edition

En

VA 6/100 H 1100 BR 140
0 460 306 061

supersedes 7.71
company Guldner
engine 6 L 79-75 PS

Nozzle-and-holder assembly
1 688 901 020 (172 + 3 bar)

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B
Pre-setting see reverse side

Pre-stroke setting 0,1 mm
Plunger lift of 1,0 mm related to outlet "A"

Testoil-ISO 4113

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1 1 Timing device travel	700	6,1-7,1 mm		
1 2 Supply pump pressure	700	5,1-5,6 kp/cm ²		
1 3 Full-load delivery without charge-air pressure	800	54,5-55,5 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1 4 Idle speed regulation	250	10,0-16,0 cm ³ /1000 strokes		3,0
1 5 Start	100	mind. 70,0 cm ³ /1000 strokes		
1 6 Full-load speed regulation	1130	24,0-32,0 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2 1 Timing device	rev/min	250-400 (220-430)	700	900-1050
	mm	Start	(5,8-7,4)	9,7-10,4 (9,4-10,7)
2 2 Supply pump	rev/min	100	700	1100
	kp/cm ²	1,2-1,7 (1,0-1,9)	(4,9-5,8)	6,5-7,0 (6,3-7,2)
Overflow delivery	rev/min	500		1000
	cm ³ /10 s	mind. 25		55-125 (40-140)

2 3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1150-1200 (1130-1220)	0	
		1130	(23,0-33,0)	
		1050	54,5-57,5 (53,5-58,5)	
		800	(54,0-56,0)	
		500	46,0-49,0 (45,0-50,0)	
	Stop	1100	0	
Idle stop	Full	300-350 (280-370)	0	
		250	(9,0-17,0)	
	Start	100	mind. 70,0	
End stop		130-230		

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Angle to the stop-plate	Pre-setting dimensions
<p>Pump</p> $\alpha = 25 \pm 4^\circ$ $\beta = 50 \pm 8^\circ$ $\gamma = 30 - 8^\circ$ $\delta = 60 + 8^\circ$	<p>Pump</p> <p>Dimension IV = 1,0 mm</p> <p>Dimension V = - mm</p>

Testoil-ISO 4113

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 IHC 5,1 g

2. Edition

En

VA 6/100 H 1200 BR 51

supersedes 12.70
company IHC
engine D 310 DU

Nozzle-and-holder assembly
1 688 901 020 (172 + 3 bar)

Pre-stroke setting 0,3 mm
Plunger lift of 1,0 mm related to outlet "A"

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B
Pre-setting see reverse side

Testoil-ISO 4113

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1.1 Timing device travel	1100	5,6-6,6 mm		
1.2 Supply pump pressure	1100	6,3-6,8 kp/cm ²		
1.3 Full-load delivery without charge-air pressure	800	58,0-59,0 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1.4 Idle speed regulation	300	12,0-18,0 cm ³ /1000 strokes		3,0
1.5 Start (mech.) 196 bar	100	mind. 90,0 cm ³ /1000 strokes		
1.6 Full-load speed regulation	1250	41,0-49,0 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2.1 Timing device	rev/min	560-720(530-750)	1100	1110-1210
	mm	Start	(5,3-6,9)	6,7-7,4(6,4-7,7)
2.2 Supply pump	rev/min	100	1100	1200
	kp/cm ²	1,4-1,9(1,2-2,1)	(6,1-7,0)	--
Overflow delivery	rev/min	500	1000	
	cm ³ /10 s	mind. 25	55-125(40-140)	

2.3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1340-1390 (1320-1410)	0	
		1250	(40,0-50,0)	
		1150	60,0-63,0 (59,0-64,0)	
		800	(57,5-59,5)	
		500	50,5-53,5 (49,5-54,5)	
	Stop	1200	0	
Idle stop	Full	360-410 (340-430)	0	
		300	(11,0-19,0)	
		100	mind. 90,0	
	Start	500	max. 45,0	
End stop				

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Angle to the stop-plate	Pre-setting dimensions
Pump $\alpha = 25 \pm 4^\circ$ $\beta = 40 \pm 8^\circ$ $\gamma = 30 - 8^\circ$ $\delta = 60 + 8^\circ$	Pump Dimension IV = 2,0 mm Dimension V = - mm

Testoil-ISO 4113

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 GUL 3,1 a

3. Edition

En

VA 4/100 H 1150 BR 106

supersedes

company

Güldner

engine

4 L 79

Nozzle-and-holder assembly
1 688 901 020 (172 + 3 bar)

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers

Test Instructions and Test Equipment

VDI-WPP 161/4 B

Pre-setting see reverse side

Pre-stroke setting 0,1 mm
Plunger lift of 1,0 mm related to outlet "A"

Testoil-ISO 4113

1. Settings	rev/min	Settings	Charge air press kp/cm ²	Difference in delivery cm ³
1.1 Timing device travel	700	4,5-5,5 mm		
1.2 Supply pump pressure	1150	5,6-6,1 kp/cm ²		
1.3 Full-load delivery without charge-air pressure	800	54,0-55,0 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1.4 Idle speed regulation	250	11,0-17,0 cm ³ /1000 strokes		3,0
1.5 Start	100	mind.100,0 cm ³ /1000 strokes		
1.6 Full-load speed regulation	1190	16,0-24,0 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2.1 Timing device	rev/min	350-510 (320-540)	700	990-1150
	mm	Start	(4,2-5,8)	10,7-11,4 (10,4-11,7)
2.2 Supply pump	rev/min	100	200	1150
	kp/cm ²	0,9-1,4 (0,7-1,6)	3,9-4,4 (3,7-4,6)	(5,4-6,3)
Overflow delivery	rev/min			1000
	cm ³ /10 s			55-125 (40-140)

2.3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1170-1220 (1150-1240) 1190 1130 800 500	0 (15,0-25,0) 56,5-59,5 (55,5-60,5) (53,5-55,5) 44,5-47,5 (43,5-48,5)	
	Stop	1150	0	
Idle stop	Full	280-330 (260-350) 250	0 (10,0-18,0)	
End stop	Start	100 130-230	mind.100,0	

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Testoil-ISO 4113

Angle to the stop-plate	Pre-setting dimensions
Pump $\alpha = 25 \pm 4^\circ$ $\beta = 40 \pm 8^\circ$ $\gamma = 30 \pm 8^\circ$ $\delta = 60 \pm 8^\circ$	Pump Dimension IV = - mm Dimension V = - mm Dimension I = 7,0 mm Dimension II = 11,0 mm Dimension III = 32,8 mm

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 STE 2,0 a 2

1. Edition

En

VA 2/100 H 1100 BR 156
0 460 302 005

supersedes

company

engine

Steyr

WD 210.40

Nozzle-and-holder assembly
1 688 901 020 (172 + 3 bar)

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B
Pre-setting see reverse side

Pre-stroke setting 0,3 mm

Plunger lift of 1,0 mm related to outlet "A"

Testoil-ISO 4113

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1 1 Timing device travel	700	3,8-4,8 mm		
1 2 Supply pump pressure	700	4,1-4,6 kp/cm ²		
1 3 Full-load delivery without charge-air pressure	900	61,0-62,0 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1 4 Idle speed regulation	250	13,0-19,0 cm ³ /1000 strokes		3,0
1 5 Start	100	mind.80,0 cm ³ /1000 strokes		
1 6 Full-load speed regulation	1170	26,0-34,0 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2 1 Timing device	rev/min	420-530(390-560)	700	960-1060
	mm	Start	(3,5-5,1)	8,7-9,4(8,4-9,7)
2 2 Supply pump	rev/min	100	700	1100
	kp/cm ²	1,0-1,5(0,8-1,7)	(3,9-4,8)	5,5-6,0(5,3-6,2)
Overflow delivery	rev/min	500		1000
	cm ³ /10 s	mind. 25		55-125(40-140)

2 3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1230-1290 (1210-1310)	0	
		1170	(25,0-35,0)	
		1030	60,5-62,5 (59,5-63,5)	
		900	(60,5-62,5)	
		450	57,5-61,5 (56,5-62,5)	
	Stop	1100	0	
Idle stop	Full	300-360 (280-380)	0	
		250	(12,0-20,0)	
End stop	Start	100	mind.80,0	
		110-210		

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Angle to the stop-plate	Pre-setting dimensions
Pump $\alpha = 25 \pm 4^\circ$ $\beta = 35 \pm 8^\circ$ $\gamma = 30 - 8^\circ$ $\delta = 60 + 8^\circ$	Pump Dimension IV = 3,5 mm Dimension V = - mm

Testoil-ISO 4113

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 FIA 3,5 b

3. Edition

VA 4/110 H 1250 CL 136-6
0 460 314 034

Setting of the pointer at a stroke of 1 mm in relation to outlet "A".

Nozzle-and-holder assembly
1 688 901 020 (172 + 3 bar)

supersedes 11.79
company Fiat
engine 8045-04270

Pre-stroke setting 0,5 mm \pm 0,02 (\pm 0,04)

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B
Pre-setting see reverse side

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1 1 Timing device travel	1000	4,7-5,5 mm		
1 2 Supply pump pressure	1000	5,3-5,8 kp/cm ²		
1 3 Full-load delivery without charge-air pressure	1200	70,0-73,0 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure		cm ³ /1000 strokes		
1 4 Idle speed regulation	300	22,0-28,0 cm ³ /1000 strokes		3,0
1 5 Start	100	mind. 110,0 cm ³ /1000 strokes		
1 6 Full-load speed regulation	1400	26,0-34,0 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2 1 Timing device	rev/min	700	1000	1100-1250
	mm	1,5-2,5(1,2-2,8)	(5,0-6,1)	6,1-6,8(5,8-7,1)
2 2 Supply pump	rev/min	200	1000	1100-1250
	kp/cm ²	1,5-2,0(1,3-2,2)	(5,1-6,0)	6,1-6,8(5,9-7,0)
Overflow delivery	rev/min	500		1250
	cm ³ /10 s	55-100(40-110)		55-100(40-110)

2 3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1460-1510 (1440-1530) 1400 1200 800 500	0 (25,0-35,0) (69,0-74,0) 70,5-71,5 (70,0-72,0) 62,0-65,0 (61,0-66,0)	
	Stop	1250	0	
Idle stop	Full	400-450 (380-470) 300	0 (21,0-29,0)	
	Start	100	mind. 110,0	
End stop		110-230		

Angle to the stop-plate	Pre-setting dimensions
Pump $\alpha = 25 \pm 4^\circ$ $\beta = 35 \pm 8^\circ$ $\gamma = 30 \pm 8^\circ$ $\delta = 60 \pm 8^\circ$	Pump Dimension IV = 3,60 mm Dimension V = 24,65 mm

Testoil-ISO 4113

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 STE 2,3 c 3

1. Edition

En

VA 4/90 H 1200 CR 144
0 460 394 008

supersedes

company

engine

Steyr
WD 407

Nozzle-and-holder assembly
1 688 901 020 (172 + 3 bar)

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B
Pre-setting sec reverse side

Pre-stroke setting 0,3 mm \pm 0,02 (\pm 0,04)
Plunger lift of 1,0 mm related to outlet "A"

Testoil-ISO 4113

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1 1 Timing device travel	1000	4,8-5,8 mm		
1 2 Supply pump pressure	1000	5,2-5,7 kp/cm ²		
1 3 Full-load delivery without charge-air pressure	900	51,0-53,0 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1 4 Idle speed regulation	300	7,0-13,0 cm ³ /1000 strokes		3,0
1 5 Start (autom.)	100	mind.75,0 cm ³ /1000 strokes		
1 6 Full-load speed regulation	1300	16,0-24,0 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2 1 Timing device	rev/min	450-600(420-630)	1000	1140-1240
	mm	Start	(4,5-6,1)	7,0-7,7(6,7-8,0)
2 2 Supply pump	rev/min	200	1000	1200
	kp/cm ²	1,4-1,9(1,2-2,1)	(5,0-5,9)	6,0-6,5(5,8-6,7)
Overflow delivery	rev/min	500		1200
	cm ³ /10 s	55-100(40-110)		55-100(40-110)

2 3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1330-1390 (1310-1410)	0	
		1300	(15,0-25,0)	
		1150	54,0-55,5 (53,0-56,5)	
		900	51,0-53,0 (50,5-53,5)	
		500	51,0-54,5 (50,0-55,5)	
	Stop	1200	0	
Idle stop	Full	390-440 (370-460)	0	
		300	(6,0-14,0)	
		100	mind.75,0	
End stop	Start	150-250		

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Testoil-ISO 4113

Angle to the stop plate	Pre-setting dimensions
Pump $\alpha = 25 \pm 4^\circ$ $\beta = 40 \pm 8^\circ$ $\gamma = 30 \pm 8^\circ$ $\delta = 60 \pm 8^\circ$	Pump Dimension IV = 3,0 mm Dimension V = 24,6 mm

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 STE 2,3 c 1

2. Edition

En

VA 3/90 H 1200 CR 143
0 460 393 006

supersedes 7.71
company Steyr
engine WD 307

Nozzle-and-holder assembly
1 688 901 020 (172 + 3 bar)

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B
Pre-setting see reverse side

Pre-stroke setting 0,3 mm \pm 0,02 (\pm 0,04)
Plunger lift of 1,0 mm related to outlet "A"

Testoil-ISO 4113

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1 1 Timing device travel	1000	5,5-6,4 mm		
1 2 Supply pump pressure	1000	5,2-5,7 kp/cm ²		
1 3 Full-load delivery without charge-air pressure	1200	53,5-54,5 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1 4 Idle speed regulation	300	12,0-18,0 cm ³ /1000 strokes		3,0
1 5 Start (autom.)	100	mind.70,0 cm ³ /1000 strokes		
1 6 Full-load speed regulation	1300	13,0-21,0 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2 1 Timing device	rev/min	400-550 (370-580)	1000	1120-1240
	mm	Start	(5,2-6,7)	6,9-7,6 (6,6-7,9)
2 2 Supply pump	rev/min	200	1000	1200
	kp/cm ²	1,5-2,0 (1,3-2,2)	(5,0-5,9)	5,9-6,4 (5,7-6,6)
Overflow delivery	rev/min	500		1200
	cm ³ /10 s	55-100 (40-110)		55-100 (40-110)

2 3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1310-1410 (1320-1430) 1300 1200 800 500	0 (12,0-22,0) (53,0-55,0) 51,0-54,0 54,0-57,0 (53,0-58,0)	
	Stop	1200	0	
Idle stop	Full	400-460 (380-480) 300	0 (11,0-19,0)	
	Start	100	mind.70,0	
End stop		130-230		

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Testoil-ISO 4113

Angle to the stop-plate	Pre-setting dimensions
<p>Pump $\alpha = 25 \pm 4^\circ$ $\beta = 45 \pm 8^\circ$ $\gamma = 30 \pm 8^\circ$ $\delta = 60 \pm 8^\circ$</p>	<p>Pump Dimension IV = 3,0 mm Dimension V = 24,6 mm</p>

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 IHC 3,9 d 1

2. Edition

En

VA 4/100 H 1250 CR 60 Ensemble injecteur/porte-injecteur
0 460 304 102 1 688 901 020 (172 + 3 bar)

supersedes

company

engine

Réglage de l'index pour une course de piston de
1 mm et rapporté à la sortie "A".

Pre-stroke setting 0,5_{mm} ± 0,04

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B
Pre-setting see reverse side

Testoil-ISO 4113

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1.1 Timing device travel	900	4,5-5,5 mm		
1.2 Supply pump pressure	900	5,0-5,5 kp/cm ²		
1.3 Full-load delivery without charge-air pressure	900	71,5-72,5 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1.4 Idle speed regulation	300	19,5-25,5 cm ³ /1000 strokes		3,0
1.5 Start 196 bar	100	mind.90,0 cm ³ /1000 strokes		
1.6 Full-load speed regulation	1300	31,0-39,0 cm ³ /1000 strokes		

2. Test Specifications

		Checking values in brackets			
2.1 Timing device	rev/min	200-350(170-380)	500	900	1130-1250
	mm	Début	1,7-2,7(1,4-3,0)	(4,2-5,8)	7,0-7,7(6,7-8,0)
		200		900	1250
2.2 Supply pump	rev/min	1,9-2,4(1,7-2,6)		(4,8-5,7)	6,3-6,8(6,1-7,0)
	kp/cm ²	500		1250	
Overflow delivery	rev/min	55-100(40-110)			55-100(40-110)
	cm ³ /10 s				

2.3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1310-1360 (1290-1380)	0	
		1300	(30,0-40,0)	
		1260-1280	Début	
		1200	71,0-74,0	(70,0-75,0)
		900		(71,0-73,0)
		500	66,5-69,5	(65,5-70,5)
	Stop	1250	0	
Idle stop	Full	410-480 (390-500)	0	
		300	(18,5-26,5)	
		100	mind.90,0	
Butée de fin de course	Start	220-300		

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Testoil-ISO 4113

Angle to the stop-plate	Pre-setting dimensions
<p>Pump $\alpha = 25 \pm 4^\circ$ $\beta = 45 \pm 8^\circ$ $\gamma = 30 \pm 8^\circ$ $\delta = 60 \pm 8^\circ$</p>	<p>Pump Dimension IV = 1,5 mm Dimension V = 24,6 mm</p>

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 IHC 2,4 a 1

3. Edition

VA 3/100 H 950 CR 9 Nozzle-and-holder assembly
CR 9-2 1 688 901 020 (172 + 3 bar)

supersedes 7.73
company IHC
engine D 155 tractor
E-423

Setting of the pointer at a stroke of 1 mm in
relation to outlet "A".

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B
Pre-setting see reverse side

Pre-stroke setting 0,3 mm ($\pm 0,04$)

Testoil-ISO 4113

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1.1 Timing device travel	600	3,3-4,1 mm		
1.2 Supply pump pressure	600	4,8-5,3 kp/cm ²		
1.3 Full-load delivery without charge-air pressure	800	64,5-65,5 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1.4 Idle speed regulation	350	12,0-18,0 cm ³ /1000 strokes		3,5
1.5 Start 196 bar	100	mind.90,0 cm ³ /1000 strokes		
1.6 Full-load speed regulation	1000	33,4-41,4 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2.1 Timing device	rev/min	120-250(90-280)	300	600	800-950
	mm	Start	0,8-1,8(0,5-2,1)	(3,0-4,4)	4,7-5,4(4,4-5,7)
2.2 Supply pump	rev/min	200		600	950
	kp/cm ²	2,3-2,8(2,1-3,0)		(4,6-5,5)	6,3-6,8(6,1-7,0)
Overflow delivery	rev/min	500			950
	cm ³ /10 s	55-100(40-110)			55-100(40-110)

2.3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1050-1100 (1030-1120) 1000 960-980 930 800 500	0 (32,4-42,4) Start 65,5-68,5 (64,5-69,5) (64,0-66,0) 56,5-59,5 (55,5-60,5)	
	Stop	950	0	
Idle stop	Full	400-460 (380-480) 350	0 (11,0-19,0)	
	Start	100	mind.90,0	
End stop		220-300		

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H7

Testoil-ISO 4113

Angle to the stop-plate	Pre-setting dimensions
<p>Pump</p> $\alpha = 25 \pm 4^\circ$ $\beta = 40 \pm 8^\circ$ $\gamma = 30 \pm 8^\circ$ $\delta = 60 \pm 8^\circ$	<p>Pump</p> <p>Dimension IV = 1,0 mm</p> <p>Dimension V = 24,6 mm</p>

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 IHC 3,9 d 6

1. Edition

En

VA 4/100 H 1100 CR 69-2

0 460 304 172

Setting in accordance with WPP 161/4,1st.

Supplement plunger lift 1.0 mm

referenced to outlet "A".

supersedes

company IHC

D 239-724

engine

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers

Test Instructions and Test Equipment
VDT-WPP 161/4 B

Pre-setting see reverse side

Pre-stroke setting 0 mm

Nozzle-and-holder assembly
1 688 901 020 (172 + 3 bar)

Testoil-ISO 4113

1. Settings	rev/min	Settings	Charge-air press. kp/cm ²	Difference in delivery cm ³
1.1 Timing device travel	700	3,1-3,9 mm		
1.2 Supply pump pressure	700	5,0-5,5 kp/cm ²		
1.3 Full-load delivery without charge-air pressure	800	66,0-67,0 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1.4 Idle speed regulation	350	12,0-18,0 cm ³ /1000 strokes		3,0
1.5 Start 196 bar	100	mind.90,0 cm ³ /1000 strokes		
1.6 Full-load speed regulation	1180	26,0-34,0 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2.1 Timing device	rev/min	250-400(220-430)	700	900-1050
	mm	Start	(2,8-4,2)	4,7-5,4(4,4-5,7)
2.2 Supply pump	rev/min	200	700	1100
	kp/cm ²	2,2-2,7(2,0-2,9)	(4,8-5,7)	6,5-7,0(6,3-7,2)
Overflow delivery	rev/min	500		1100
	cm ³ /10 s	55-100(40-110)		55-100(40-110)

2.3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1210-1270 (1190-1290)	0	
		1180	(25,0-35,0)	
		1080	69,5-72,5 (68,5-73,5)	
		800	(65,5-67,5)	
		500	63,0-65,0 (62,0-66,0)	
	Stop	1100	0	
Idle stop	Full	410-470 (390-490)	0	
		350	(11,0-19,0)	
	Start	100	mind.90,0	
End stop		220-300		

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H9

Testoil-ISO 4113

Angle to the stop-plate	Pre-setting dimensions
<p>Pump $\alpha = 25 \pm 4^\circ$ $\beta = 40 \pm 8^\circ$ $\gamma = 30 \pm 8^\circ$ $\delta = 60 \pm 8^\circ$</p>	<p>Pump Dimension IV = 2,0 mm Dimension V = 24,6 mm</p>

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 IHC 5,8 p

3. Edition

En

VA 6/110 H 1150 CR 180-4 . Nozzle-and-holder assembly
CR 180-4 P 1 688 901 020 (172 + 3 bar)

0 460 316 032

Setting of the pointer at a stroke of 1 mm in
relation to outlet "A".

supersedes 5.79

company IHC

engine DT 358/3980B/3984B

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers

Test Instructions and Test Equipment
VDT-WPP 161/4 B

Pre-setting see reverse side

Testoil-ISO 4113

Pre-stroke setting 0,5 mm \pm 0,02(\pm 0,04)

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1.1 Timing device travel	800	5,4-6,4 mm	0	
1.2 Supply pump pressure	800	4,9-5,4 kp/cm ²	0	
1.3 Full-load delivery without charge-air pressure	500	77,0-80,0 cm ³ /1000 strokes	0,1	2,5
Full-load delivery with charge-air pressure	800	92,5-93,5 cm ³ /1000 strokes	0,5	
1.4 Idle speed regulation	700	7,0-13,0 cm ³ /1000 strokes	0	3,0
1.5 Start	100	mind.100,0 cm ³ /1000 strokes	0	
1.6 Full-load speed regulation	1200	41,0-49,0 cm ³ /1000 strokes	0,5	

2. Test Specifications

Checking values in brackets

2.1 Timing device	rev/min	130-280(100-310)	400	800	980-1130
	mm	Start	1,8-2,8(1,5-3,1)	(5,1-6,7)	6,9-7,6(6,6-7,9)
2.2 Supply pump	rev/min	200		800	1150
	kp/cm ²	1,8-2,3(1,6-2,5)		(4,7-5,6)	6,3-6,8(6,1-7,0)
Overflow delivery	rev/min	500			1150
	cm ³ /10 s	55-100(40-110)			55-100(40-110)

2.3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1250-1320 (1230-1340)	0	0,5
		1200	(40,0-50,0)	0,5
		1130-1160	Start	
		1100	85,0-88,0 (84,0-89,0)	0,5
		1000	85,0-87,0 (84,0-88,0)	0,5
		800	(92,0-94,0)	0,5
		500	(76,0-81,0)	0,1
	Stop	1150	0	
Idle stop	Full	760-810 (740-830)	0	
		700	(6,0-14,0)	
	Start	100	mind.100,0	
End stop		260-360		

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H11

Angle to the stop-plate	Pre-setting dimensions
Pump $\alpha = 25 \pm 4^\circ$ $\beta = 35 \pm 8^\circ$ γ δ	Pump Dimension IV = 0,60 mm Dimension V = 24,65 mm

Testoil-ISO 4113

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 IHC 5,8 a

3. Edition

VA 6/110 H 1250 CR 180-3 Nozzle-and-holder assembly
0 460 316 030 1 688 901 020 (172 + 3 bar)
Setting of the pointer at a stroke of 1 mm in
relation to outlet "A".

supersedes 5.79
company IHC
engine DT 358/3990

Testoil-ISO 4113

Pre-stroke setting 0,5 mm \pm 0,02 (\pm 0,04)

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B
Pre-setting see reverse side

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1.1 Timing device travel	800	5,4-6,4 mm	0	
1.2 Supply pump pressure	800	4,9-5,4 kp/cm ²	0	
1.3 Full-load delivery without charge-air pressure	500	75,0-78,0 cm ³ /1000 strokes	0,1	2,5
Full-load delivery with charge-air pressure	800	90,5-91,5 cm ³ /1000 strokes	0,5	
1.4 Idle speed regulation	350	12,0-18,0 cm ³ /1000 strokes	0	3,0
1.5 Start	100	mind. 100,0 cm ³ /1000 strokes	0	
1.6 Full-load speed regulation	1310	41,0-49,0 cm ³ /1000 strokes	0,5	

2. Test Specifications

Checking values in brackets

2.1 Timing device	rev/min	150-300(120-330)	400	800	980-1130
	mm	Start	2,0-4,0(1,7-4,3)	(5,1-6,7)	6,9-7,6(6,6-7,9)
2.2 Supply pump	rev/min	200	800	1250	
	kp/cm ²	1,8-2,3(1,6-2,5)	(4,7-5,6)	6,5-7,0(6,3-7,2)	
Overflow delivery	rev/min	500		1250	
	cm ³ /10 s	55-100(40-110)		55-100(40-110)	

2.3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1350-1420 (1330-1440)	0	0,5
		1310	(40,0-50,0)	0,5
		1240-1270	Start	
		1200	88,0-91,0 (87,0-92,0)	0,5
		1000	90,0-92,0 (89,0-93,0)	0,5
		800	(90,0-92,0)	0,5
		500	(74,0-79,0)	0
	Stop	1250	0	
Idle stop	Full	480-530 (460-550)	0	
		350	(11,0-19,0)	
	Start	100	mind. 100,0	
End stop		220-320		

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H13

Angle to the stop-plate	Pre-setting dimensions
<p>Pump</p> <p>$\alpha = 25 \pm 4^\circ$</p> <p>$\beta = 40 \pm 8^\circ$</p> <p>γ</p> <p>δ</p>	<p>Pump</p> <p>Dimension IV = 0,60 mm</p> <p>Dimension V = 24,65 mm</p>

Testoil-ISO 4113

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 IHC 5,8 g 2

1. Edition

En

VA 6/110 H 1100 CR 180-2
0 460 316 022

supersedes
company IHC
engine DT 358

Nozzle-and-holder assembly
1 688 901 020 (172 + 3 bar)

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B
Pre-setting see reverse side

Pre-stroke setting 0,5 mm ± 0,02(±0,04)
Plunger lift of 1,0 mm related to outlet "A"

Testoil-ISO 4113

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1 1 Timing device travel	800	5,7-6,7 mm	0	
1 2 Supply pump pressure	800	4,8-5,3 kp/cm ²	0	
1 3 Full-load delivery without charge-air pressure	500	78,5-81,5 cm ³ /1000 strokes	0,2	
Full-load delivery with charge-air pressure	800	85,5-86,5 cm ³ /1000 strokes	0,4	2,5
1 4 Idle speed regulation	450	14,5-20,5 cm ³ /1000 strokes	0	3,0
1 5 Start	100	mind.95,0 cm ³ /1000 strokes	0	
1 6 Full-load speed regulation	1180	41,0-49,0 cm ³ /1000 strokes	0,4	

2. Test Specifications		Checking values in brackets			
2 1 Timing device	rev/min	200-350(170-380)	400	800	900-1050
	mm	Start	1,0-2,0(0,7-2,3)	(5,4-7,0)	6,9-7,6(6,6-7,9)
2 2 Supply pump	rev/min	200		800	1100
	kp/cm ²	1,3-1,8(1,1-2,0)		(4,6-5,5)	6,0-6,4(5,8-6,6)
Overflow delivery	rev/min	500			1100
	cm ³ /10 s	55-100(40-110)			55-100(40-110)
2 3 Fuel deliveries					
Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²	
End stop	Full	1210-1280 (1190-1300)	0	0,4	
		1180		(40,0-50,0)	
		1100-1130	Start	0,4	
		1050	86,5-89,5	(85,5-90,5)	
		800		(85,0-87,0)	
		500		(77,5-82,5)	
	Stop	1100	0		
Idle stop	Full	530-580 (510-600)	0		
		450		(13,5-21,5)	
		100	mind.95,0		
End stop		220-320			

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H45

H15

Angle to the stop plate	Pre-setting dimensions
Pump $\alpha = 25 \pm 4^\circ$ $\beta = 40 \pm 8^\circ$ γ δ	Pump Dimension IV = 0,60 mm Dimension V = 24,60 mm

Testoil-ISO 4113

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 IHC 5,8 9

5. Edition

En

VA 6/110 H 1250 CR 180 Nozzle-and-holder assembly
CR 180 P 1 688 901 020 (172 + 3 bar)

0 460 316 013/016

Setting of the pointer at a stroke of 1 mm in
relation to outlet "A".

Pre-stroke setting 0,5 mm \pm 0,02 (\pm 0,04)

supersedes 4.79
company IHC
engine DT 358 H 65 C

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B
Pre-setting see reverse side

Testoil-ISO 4113

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1.1 Timing device travel	800	5,4-6,4 mm	0	
1.2 Supply pump pressure	800	4,9-5,4 kp/cm ²	0	
1.3 Full-load delivery without charge-air pressure	500	75,0-78,0 cm ³ /1000 strokes	0,1	2,5
Full-load delivery with charge-air pressure	800	90,5-91,5 cm ³ /1000 strokes	0,6	
1.4 Idle speed regulation	350	12,0-18,0 cm ³ /1000 strokes	0	3,0
1.5 Start	100	mind.100,0 cm ³ /1000 strokes	0	
1.6 Full-load speed regulation	1310	41,0-49,0 cm ³ /1000 strokes	0,6	

2. Test Specifications

Checking values in brackets

2.1 Timing device	rev/min	150-300(120-330)	400	800	980-1130
	mm	Start	2,0-3,0(1,7-3,3)	(5,1-6,7)	6,9-7,6(6,6-7,9)
2.2 Supply pump	rev/min	200		800	1250
	kp/cm ²	1,8-2,3(1,6-2,5)		(4,7-5,6)	6,5-7,0(6,3-7,2)
Overflow delivery	rev/min	500			1250
	cm ³ /10 s	55-100(40-110)			55-100(40-110)

2.3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1350-1420	0	0,6
		1310	41,0-49,0 (40,0-50,0)	0,6
		1200	88,0-91,0 (87,0-92,0)	0,6
		1000	90,0-92,0 (89,0-93,0)	0,6
		800	(90,0-92,0)	0,6
		500	(74,5-78,5)	0,1
	Stop	1250	0	
Idle stop	Full	480-530 (450-560) 350	0 (11,0-19,0)	
End stop	Start	100	mind.100,0	
		220-320		

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H17

Angle to the stop-plate	Pre-setting dimensions
Pump $\alpha = 25 \pm 4^\circ$ $\beta = 40 \pm 8^\circ$ γ δ	Pump = 0,6 mm Dimension IV Dimension V = 24,6 mm

Testoil-ISO 4113

Test Specifications

Distributor-Type

Fuel Injection Pump

46

WPP 001/4 FIA 5,2 c

3. Edition

En

VA 6/11 H 1275 CR 185-3 Nozzle-and-holder assembly
 0 460 316 041 1 688 901 020 (172 + 3 bar)
 Setting of the pointer at a stroke of 1 mm in
 relation to outlet "A".

supersedes 4.80
 company Fiat
 engine 8065.04.217

All test specifications are valid for
 Bosch Fuel Injection Pump Test Benches
 and Testers
 Test Instructions and Test Equipment
 VDT-WPP 161/4 B
 Pre-setting see reverse side

Pre-stroke setting 0,5 mm \pm 0,02 (\pm 0,04)

Testoil-ISO 4113

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1.1 Timing device travel	1000	5,8-6,6 mm		
1.2 Supply pump pressure	1000	5,7-6,2 kp/cm ²		
1.3 Full-load delivery without charge-air pressure	800	74,0-75,0 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1.4 Idle speed regulation	350	12,0-18,0 cm ³ /1000 strokes		3,0
1.5 Start	100	mind.120,0 cm ³ /1000 strokes		
1.6 Full-load speed regulation	1400	38,0-46,0 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2.1 Timing device	rev/min	600	1000	1275
	mm	Start	1,8-2,8(1,5-3,1)(5,5-6,9)	7,0-7,7(6,7-8,0)
2.2 Supply pump	rev/min	200	1000	1275
	kp/cm ²	1,7-2,2(1,5-2,4)	(5,5-6,4)	6,7-7,2(6,5-7,4)
Overflow delivery	rev/min	500		1275
	cm ³ /10 s	55-100(40-110)		55-100(40-110)

2.3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1440-1500 (1420-1520)	0	
		1400	(37,0-47,0)	
		1250	70,5-73,5 (69,5-74,5)	
		800	(73,5-75,5)	
		500	64,5-67,5 (63,5-68,5)	
	Stop	1275	0	
Idle stop	Full	470-520 (450-540)	0	
		350	(11,0-19,0)	
		100	mind.120,0	
End stop		110-230		

Angle to the stop-plate	Pre-setting dimensions
Pump $\alpha = 25 \pm 4^\circ$ $\beta = 51 \pm 8^\circ$ $\gamma = 30 - 8^\circ$ $\delta = 60 + 8^\circ$	Pump Dimension IV = 2,00 mm Dimension V = 24,65 mm

Testoil-ISO 4113

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 FIA 5,2 b

3. Edition

En

VA 6/110 H 1200 CR 185-2 Nozzle-and-holder assembly
0 460 316 034 1 688 901 020 (172 + 3 bar)

Setting of the pointer at a stroke of 1 mm in
relation to outlet "A".

supersedes 5.79
company Fiat
engine 8065.04

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B
Pre-setting see reverse side

Pre-stroke setting 0,5 mm \pm 0,02 (\pm 0,04)

Testoil-ISO 4113

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1 1 Timing device travel	1000	5,7-6,7 mm		
1 2 Supply pump pressure	1000	5,4-5,9 kp/cm ²		
1 3 Full-load delivery without charge-air pressure	800	71,0-72,0 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	-	-- cm ³ /1000 strokes		
1 4 Idle speed regulation	350	12,0-18,0 cm ³ /1000 strokes		3,0
1 5 Start	100	mind. 110,0 cm ³ /1000 strokes		
1 6 Full-load speed regulation	1300	38,0-46,0 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2 1 Timing device	rev/min	300-450 (270-480)	800	1000	1030-1180
	mm	Start	3,9-4,9 (3,5-4,2)	(5,4-7,0)	7,0-7,7 (6,7-7,9)
2 2 Supply pump	rev/min	200		1000	1200
	kp/cm ²	1,2-1,7 (1,0-1,9)		(5,2-6,1)	6,2-6,7 (6,0-6,9)
Overflow delivery	rev/min	500			1200
	cm ³ /10 s	55-100 (40-110)			55-100 (40-110)

2 3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1370-1430 (1350-1450) 1300 1250-1270 1180 800 500	0 (37,0-47,0) Start 67,0-70,0 (66,0-71,0) (70,5-72,5) 59,5-62,5 (58,5-63,5)	
	Stop	1200	0	
Idle stop	Full	470-520 (450-540) 350	0 (11,0-19,0)	
	Start	100	mind. 110,0	
End stop		110-230		

H21

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11 20

Angle to the stop-plate	Pre-setting dimensions
Pump $\alpha = 25 \pm 4^\circ$ $\beta = 54 \pm 8^\circ$ $\gamma = 30 - 8^\circ$ $\delta = 60 + 8^\circ$	Pump = -- mm Dimension IV = -- mm Dimension V

Testoil-ISO 4113

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 FIA 5,2 a 1

2. Edition

En

VA 6/110 H 1200 CR 185-1
0 460 316 026

Nozzle-and-holder assembly
1 688 901 020 (172 + 3 bar)

supersedes 4.76
company Fiat
8065.04.207
engine

Setting of the pointer at a stroke of 1 mm in
relation to outlet "A".

Pre-stroke setting 0,5 mm \pm 0,02 (\pm 0,04)

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B
Pre-setting see reverse side

Testoil-ISO 4113

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1 1 Timing device travel	1000	5,7-6,7 mm		
1 2 Supply pump pressure	1000	5,4-5,9 kp/cm ²		
1 3 Full-load delivery without charge-air pressure	800	69,5-70,5 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1 4 Idle speed regulation	350	12,0-18,0 cm ³ /1000 strokes		3,0
1 5 Start	100	mind. 120,0 cm ³ /1000 strokes		
1 6 Full-load speed regulation	1300	38,0-46,0 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2 1 Timing device	rev/min	Start 300-450(270-480)	600	800	1000	1030-1180
	mm	1,6-2,6(1,3-2,9)	3,9-4,9(3,6-5,2)	5,4-7,0	7,0-7,7(6,7-8,0)	
2 2 Supply pump	rev/min	200		1000	1200	
	kp/cm ²	1,5-2,0(1,3-2,2)		(5,2-6,1)	6,2-6,7(6,0-6,9)	
Overflow delivery	rev/min	500			1200	
	cm ³ /10 s	55-100(40-110)			55-100(40-110)	

2 3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1380-1440 (1360-1460) 1300 1250-1270 1180 800 500	0 (37,0-47,0) Start 71,0-74,0 (70,0-75,0) (69,0-71,0) 58,0-61,0 (57,0-62,0)	
	Stop	1200	0	
Idle stop	Full	470-520 (450-540) 350	0 (11,0-19,0)	
	Start	100	mind. 120,0	
End stop		110-230		

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H23

#123

Testoil-ISO 4113

Angle to the stop-plate	Pre-setting dimensions
Pump $\alpha = 25 \pm 4^\circ$ $\beta = 54 \pm 8^\circ$ $\gamma = 30 - 8^\circ$ $\delta = 60 + 8^\circ$	Pump = 3,6 mm Dimension IV = 24,6 mm Dimension V

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 FIA 5,2 a

2. Edition

En

VA 6/110 H 1200 CR 185
0 460 316 024

Nozzle-and-holder assembly
1 688 901 020 (172 + 3 bar)

supersedes 6.75
company Fiat
engine 8065.02

Setting of the pointer at a stroke of 1 mm in
relation to outlet "A".

Pre-stroke setting 0,5 mm \pm 0,02 (\pm 0,04)

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B
Pre-setting see reverse side

Testoil-ISO 4113

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1.1 Timing device travel	1000	5,7-6,7 mm		
1.2 Supply pump pressure	1000	5,4-5,9 kp/cm ²		
1.3 Full-load delivery without charge-air pressure	800	63,0-64,0 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1.4 Idle speed regulation	350	12,0-18,0 cm ³ /1000 strokes		3,0
1.5 Start	100	mind. 120,0 cm ³ /1000 strokes		
1.6 Full-load speed regulation	1300	31,0-39,0 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2.1 Timing device	rev/min	300-450 (270-480)	600	1000	1030-1180
	mm	Start	1,6-2,6 (1,3-2,9)	(5,4-7,0)	7,0-7,7 (6,7-8,0)
2.2 Supply pump	rev/min	200		1000	1200
	kp/cm ²	1,5-2,0 (1,3-2,2)		(5,2-6,1)	6,2-6,7 (6,0-6,9)
Overflow delivery	rev/min	500			1200
	cm ³ /10 s	55-100 (40-110)			55-100 (40-110)

2.3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1360-1420 (1340-1440)	0	
		1300	(30,0-40,0)	
		1180	62,0-65,0 (61,0-66,0)	
		800	(62,5-64,5)	
		500	46,5-49,5 (45,5-50,5)	
	Stop	1200	0	
Idle stop	Full	470-520 (450-540)	0	
		350	(11,0-19,0)	
		100	mind. 120,0	
End stop	Start	110-230		

Testoil-ISO 4113

Angle to the stop-plate	Pre-setting dimensions
Pump $\alpha = 25 \pm 4^\circ$ $\beta = 50 \pm 8^\circ$ $\gamma = 30 \pm 8^\circ$ $\delta = 60 \pm 8^\circ$	Pump Dimension IV = 3,6 mm Dimension V = 24,6 mm

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 IHC 4,4 c

2. Edition
En

VA 4/110 H 1200 CR 188-1
CR 188-1 P Nozzle-and-holder assembly
0 460 314 039 1 688 901 020 (172 + 3 bar)
Setting of the pointer at a stroke of 1 mm in
relation to outlet "A".

Pre-stroke setting 0,5 mm \pm 0,02 (\pm 0,04)

supersedes 1.79
company IHC
engine D 268/270 A

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B
Pre-setting see reverse side

Testoil-ISO 4113

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1.1 Timing device travel	700	4,8-5,8 mm		
1.2 Supply pump pressure	700	4,4-4,9 kp/cm ²		
1.3 Full-load delivery without charge-air pressure	800	77,5-78,5 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1.4 Idle speed regulation	400	11,0-17,0 cm ³ /1000 strokes		3,0
1.5 Start	100	mind.95,0 cm ³ /1000 strokes		
1.6 Full-load speed regulation	1280	34,0-42,0 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2.1 Timing device	rev/min	220-370(190-400)	400	700	770-920
	mm	Start	1,2-2,2(0,9-2,5)	(4,5-6,1)	6,1-6,8(5,8-7,1)
2.2 Supply pump	rev/min	200		700	1200
	kp/cm ²	1,7-2,2(1,5-2,4)		(4,2-5,1)	6,4-6,9(6,2-7,1)
Overflow delivery	rev/min	500			1200
	cm ³ /10 s	55-100(40-110)			55-100(40-110)

2.3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1330-1380 (1310-1400)	0	
		1280	(33,0-43,0)	
		1150	80,0-83,0 (79,0-84,0)	
		800	(77,0-79,0)	
		500	74,0-77,0 (73,0-78,0)	
	Stop	1200	0	
Idle stop	Full	450-530 (440-550)	0	
		400	(10,0-18,0)	
	Start	100	mind.95,0	
End stop		250-350		

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Testoil-ISO 4113

Angle to the stop-plate	Pre-setting dimensions
Pump $\alpha = 25 \pm 4^\circ$ $\beta = 36 \pm 8^\circ$ $\gamma = 30 \pm 8^\circ$ $\delta = 60 \pm 8^\circ$	Pump = 1,60 mm Dimension IV = 24,65 mm Dimension V

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 IHC 3,9 k

2. Edition

VA 4/100 H 1200 CR 187
CR 187 P Nozzle-and-holder assembly
0 460 304 232/233 P 1 688 901 020 (172 ÷ 3 bar)
Setting of the pointer at a stroke of 1 mm in
relation to outlet "A".

supersedes 8.77
company IHC
engine D 239

Pre-stroke setting 0,5 mm ± 0,02 (± 0,04)

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B
Pre-setting see reverse side

Testoil-ISO 4113

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1.1 Timing device travel	900	3,6-4,6 mm		
1.2 Supply pump pressure	900	4,7-5,2 kp/cm ²		
1.3 Full-load delivery without charge-air pressure	800	70,0-71,0 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1.4 Idle speed regulation	350	12,0-18,0 cm ³ /1000 strokes		3,0
1.5 Start	100	mind.85,0 cm ³ /1000 strokes		
1.6 Full-load speed regulation	1300	24,0-32,0 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2.1 Timing device	rev/min	--	500	900	1000-1150
	mm	Start	1,3-2,3(1,0-2,6)	(3,3-4,9)	4,7-5,4(4,4-5,7)
2.2 Supply pump	rev/min	200	900	1200	
	kp/cm ²	1,4-1,9(1,2-2,1)	(4,5-5,4)	5,7-6,2(5,5-6,4)	
Overflow delivery	rev/min	500	1200		
	cm ³ /10 s	55-100(40-110)	55-100(40-110)		

2.3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1330-1380 (1310-1400)	0	
		1300	(23,0-33,0)	
		1220-1240	Start	
		1180	74,0-77,0	(73,0-78,0)
		800	(69,5-71,5)	
		500	68,0-71,0	(67,0-72,0)
	Stop	1200	0	
Idle stop	Full	420-490 (400-510)	0	
		350	(11,0-19,0)	
	Start	100	mind.85,0	
End stop		250-350		

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J5

Angle to the stop-plate	Pre-setting dimensions
Pump $\alpha = 25 \pm 4^\circ$ $\beta = 40 \pm 8^\circ$ $\gamma = 30 - 8^\circ$ $\delta = 60 + 8^\circ$	Pump Dimension IV = 1,80 mm Dimension V = 24,65 mm

Testoil-ISO 4113

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 IHC 5,8 u

2. Edition

VA 6/10 H 1500 CR 189-1
CR 189 1P Nozzle-and-holder assembly
0 460 306 258 1 688 901 020 (172 + 3 bar)

Setting of the pointer at a stroke of 1 mm in
relation to outlet "A".

Pre-stroke setting 0,4 mm \pm 0,02 (\pm 0,04)

supersedes 3.81
company IHC
engine D 358/1730 B

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B
Pre-setting see reverse side

Testoil-ISO 4113

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1.1 Timing device travel	1000	4,7-5,5 mm		
1.2 Supply pump pressure	1000	5,4-5,9 kp/cm ²		
1.3 Full-load delivery without charge-air pressure	900	68,0-69,0 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1.4 Idle speed regulation	330	15,0-21,0 cm ³ /1000 strokes		3,0
1.5 Start	100	mind.75,0 cm ³ /1000 strokes		
1.6 Full-load speed regulation	1550	36,0-44,0 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2.1 Timing device	rev/min	--	600	1000	1200	1500
	mm	Start				
		1,2-2,2	(0,9-2,5)	(4,4-5,8)	6,1-7,1	(5,8-7,4) 7,0-7,7(6,7-8,0)
2.2 Supply pump	rev/min	200	1000		1500	
	kp/cm ²	1,6-2,1	(1,4-2,3)	(5,2-6,1)		7,2-7,7(6,9-8,0)
Overflow delivery	rev/min	500			1500	
	cm ³ /10 s	55-100	(40-110)			55-100(40-110)

2.3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1610-1660 (1590-1680)	0	
		1550	(35,0-45,0)	
		1450	64,0-67,0 (63,0-68,0)	
		900	(67,5-69,5)	
		500	60,0-64,0 (59,0-65,0)	
	Stop	1500	0	
Idle stop	Full	380-430 (360-450) 330	0 (14,0-22,0)	
	Start	100	mind.75,0	
End stop		260-360		

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Angle to the stop-plate	Pre-setting dimensions
<p>Pump</p> $\alpha = 25 \pm 4^\circ$ $\beta = 49 \pm 8^\circ$ $\gamma = 30 - 8^\circ$ $\delta = 60 + 8^\circ$	<p>Pump</p> $\text{Dimension IV} = 2,30 \text{ mm}$ $\text{Dimension V} = 24,65 \text{ mm}$

Testoil-ISO 4113

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 FIA,3,6 a

3. Edition

VA 4/110 H 1600 CR 190 Nozzle-and-holder assembly
0 460 314 033 1 688 901 020 (172 + 3 bar)

supersedes 12.78
company Fiat
engine 8040.04

Setting of the pointer at a stroke of 1 mm in
relation to outlet "A".

Pre-stroke setting 0,5 mm \pm 0,02 (\pm 0,04)

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B
Pre-setting see reverse side

Testoil-ISO 4113

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1.1 Timing device travel	1000	4,6-5,6 mm		
1.2 Supply pump pressure	1000	5,3-5,8 kp/cm ²		
1.3 Full-load delivery without charge-air pressure	700	71,0-72,0 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1.4 Idle speed regulation	300	14,0-20,0 cm ³ /1000 strokes		3,0
1.5 Start	100	mind. 110,0 cm ³ /1000 strokes		
1.6 Full-load speed regulation	1750	36,0-44,0 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2.1 Timing device	rev/min	430-580(400-610)	1000	1400	1450-1600
	mm	Start	(4,3-5,9)	9,3-10,3 (9,0-10,6)	10,7-11,4(10,4-11,7)
2.2 Supply pump	rev/min	200	1000		1600
	kp/cm ²	1,0-1,5(0,8-1,7)	(5,1-6,0)		7,5-8,0(7,3-8,2)
Overflow delivery	rev/min	500			1600
	cm ³ /10 s	55-100(40-110)			55-100(40-110)

2.3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1930-2000 (1910-2020)	0	
		1750	(35,0-45,0)	
		1640-1660	Start	
		1600	65,0-68,0 (64,0-69,0)	
		1000	72,0-75,0 (71,0-76,0)	
		700	(70,5-72,5)	
		500	59,0-62,0 (58,0-63,0)	
	Stop	1600	0	
Idle stop	Full	330-380 (310-400)	0	
		300	(13,0-21,0)	
	Start	100	mind. 110,0	
End stop		350-450		

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Angle to the stop-plate	Pre-setting dimensions
<p>Pump $\alpha = 25 \pm 4^\circ$ $\beta = 50 \pm 8^\circ$ $\gamma = 30 \pm 8^\circ$ $\delta = 60 \pm 8^\circ$</p>	<p>Pump Dimension IV = 4,60 mm Dimension V = 24,65 mm</p>

Testoil-ISO 4113

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 IHC 5,8 k

2. Edition

En

VA 6/100 H 1200 CR 51-1 Nozzle-and-holder assembly
0 460 306 201 1 688 901 020 (172 + 3 bar)
Setting of the pointer at a stroke of 1 mm in
relation to outlet "A".

supersedes 3.77
company IHC
engine D 358

Pre-stroke setting 0,3 mm ± 0,04

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B
Pre-setting see reverse side

Testoil-ISO 4113

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1.1 Timing device travel	900	4,1-5,1 mm		
1.2 Supply pump pressure	900	5,8-6,3 kp/cm ²		
1.3 Full-load delivery without charge-air pressure	800	64,0-65,0 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1.4 Idle speed regulation	300	12,0-18,0 cm ³ /1000 strokes		3,0
1.5 Start	100	mind.80,0 cm ³ /1000 strokes		
1.6 Full-load speed regulation	1250	36,0-44,0 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2.1 Timing device	rev/min	Start				
	mm	270-420(240-450)	500	800	900	1000-1150
		0,8-1,8(0,5-2,1)	3,4-3,6(3,1-3,9)	(3,8-5,4)	5,2-5,9(4,9-6,2)	
2.2 Supply pump	rev/min	200		900	1200	
	kp/cm ²	2,4-2,9(2,2-3,1)		(5,6-6,5)	6,9-7,4(6,7-7,6)	
Overflow delivery	rev/min	500			1200	
	cm ³ /10 s	55-100(40-110)			55-100(40-110)	

2.3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1300-1350 (1280-1370) 1250 1210-1230 1150 800 500	0 (35,0-45,0) Start 66,0-69,0 (65,0-70,0) (63,5-65,5) 62,5-65,5 (61,5-66,5)	
	Stop	1200	0	
Idle stop	Full	350-400 (330-420) 300	0 (11,0-19,0)	
	Start	100	mind.80,0	
End stop		220-320		

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Testoil-ISO 4113

Angle to the stop-plate	Pre-setting dimensions
<p>Pump</p> <p>$\alpha = 25 \pm 4^\circ$</p> <p>$\beta = 50 \pm 8^\circ$</p> <p>$\gamma = 30 - 8^\circ$</p> <p>$\delta = 60 \pm 8^\circ$</p>	<p>Pump</p> <p>Dimension IV = 3,6 mm</p> <p>Dimension V = 24,6 mm</p>

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 IHC 5,1 n

2. Edition
En

VA 6/100 H 1200 CR 191 Nozzle-and-holder assembly
CR 191 P 1 688 901 020 (172 + 3 bar)

supersedes 8.77
company IHC
engine D 310

0 460 306 214

Setting of the pointer at a stroke of 1 mm in
relation to outlet "A".

Pre-stroke setting 0,4 mm \pm 0,02(\pm 0,04)

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B
Pre-setting see reverse side

Testoil-ISO 4113

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1.1 Timing device travel	900	3,5-4,5 mm		
1.2 Supply pump pressure	900	5,3-5,8 kp/cm ²		
1.3 Full-load delivery without charge-air pressure	800	64,0-65,0 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1.4 Idle speed regulation	450	11,0-19,0 cm ³ /1000 strokes		3,0
1.5 Start	100	mind.80,0 cm ³ /1000 strokes		
1.6 Full-load speed regulation	1250	27,0-33,0 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2.1 Timing device	rev/min	490-540(460-570)	600	900	920-1050
	mm	Start	0,8-1,8(0,5-2,1)	(3,2-4,8)	4,7-5,4(4,4-5,7)
		200		900	1200
2.2 Supply pump	rev/min				
	kp/cm ²	1,5-2,0(1,3-2,2)		(5,1-6,0)	6,3-6,8(6,1-7,0)
		500			1200
Overflow delivery	rev/min				
	cm ³ /10 s	55-100(40-110)			55-100(40-110)

2.3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1320-1380 (1300-1400)	0	
		1250	(26,0-34,0)	
		1180-1210	Start	
		1150	60,5-63,5	(59,5-64,5)
		800	(63,5-65,5)	
		500	58,0-61,0	(57,0-62,0)
	Stop	1200	0	
Idle stop	Full	510-560 (490-580)	0	
		450	(10,0-20,0)	
		100	mind.80,0	
End stop		250-380		

J13

J13

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Angle to the stop-plate	Pre-setting dimensions
$\alpha_{\text{Pump}} = 25 \pm 4^\circ$ $\beta = 45 \pm 8^\circ$ $\gamma = 30 \pm 8^\circ$ $\delta = 60 \pm 8^\circ$	Pump Dimension IV = 2,40 mm Dimension V = 24,65 mm

Testoil-ISO 4113

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 IHC 5,8 g 1

2. Edition

En

VA 6/110 H 1100 CR 180-1
CR 180-1 P

Nozzle-and-holder assembly
1 688 901 020 (172 + 3 bar)

supersedes 10.76
company IHC
engine DT 358 "1246"

0 460 316 018

Setting of the pointer at a stroke of 1 mm in
relation to outlet "A".

Pre-stroke setting 0,5 mm \pm 0,02 (\pm 0,04)

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B
Pre-setting see reverse side

Testoil-ISO 4113

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1.1 Timing device travel	800	5,7-6,7 mm	0	
1.2 Supply pump pressure	800	4,8-5,3 kp/cm ²	0	
1.3 Full-load delivery without charge-air pressure	500	78,5-81,5 cm ³ /1000 strokes	0,2	
Full-load delivery with charge-air pressure	800	85,5-86,5 cm ³ /1000 strokes	0,4	2,5
1.4 Idle speed regulation	450	14,5-20,5 cm ³ /1000 strokes	0	3,0
1.5 Start	100	mind.95,0 cm ³ /1000 strokes	0	
1.6 Full-load speed regulation	1180	41,0-49,0 cm ³ /1000 strokes	0,4	

2. Test Specifications

		Checking values in brackets			
2.1 Timing device	rev/min	200-350(170-380)	400	800	900-1050
	mm	Start	1,0-2,0(0,7-2,3)	(5,4-7,0)	6,9-7,6(6,6-7,9)
2.2 Supply pump	rev/min	200		800	1100
	kp/cm ²	1,3-1,8(1,1-2,0)		(4,6-5,5)	6,0-6,4(5,8-6,6)
Overflow delivery	rev/min	500			1100
	cm ³ /10 s	55-100(40-110)			55-100(40-110)

2.3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1210-1280 (1190-1300)	0	0,4
		1180	(40,0-50,0)	0,4
		1100-1130	Start	
		1050	86,5-89,5 (85,5-90,5)	0,4
		800	(85,0-87,0)	0,4
		500	(77,5-82,5)	0,2
	Stop	1100	0	
Idle stop	Full	530-580 (510-600)	0	
		450	(13,5-21,5)	
		100	mind.95,0	
End stop	Start	220-320		

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J15

Angle to the stop-plate	Pre-setting dimensions
Pump $\alpha = 25 \pm 4^\circ$ $\beta = 40 \pm 8^\circ$ γ δ	Pump Dimension IV = 0,6 mm Dimension V = 24,6 mm

Testoil-ISO 4113

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 IHC 3,5 h

2. Edition

En

VA 4/100 H 1250 CR 12-15

Nozzle-and-holder assembly
1 688 901 020 (172+3 bar)

Pre-stroke setting 0,5 mm \pm 0,04

Plunger lift of 1,0 mm related to outlet "A"

supersedes 3.76
company IHC
engine D 206

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B
Pre-setting see reverse side

Testoil-ISO 4113

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1.1 Timing device travel	800	4,2-5,2 mm		
1.2 Supply pump pressure	800	4,8-5,3 kp/cm ²		
1.3 Full-load delivery without charge-air pressure	800	60,5-61,5 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1.4 Idle speed regulation	350	16,0-22,0 cm ³ /1000 strokes		3,0
1.5 Start	100	mind.85,0 cm ³ /1000 strokes		
1.6 Full-load speed regulation	1330	26,0-34,0 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2.1 Timing device	rev/min	Start				
	mm	180-330(150-360)	400	800	1100	1130-1250
		1,1-2,1(0,8-2,4)	(3,9-5,5)	6,1-7,1(5,8-7,4)	7,0-7,7(7,3-8,0)	
2.2 Supply pump	rev/min	200		800		1250
	kp/cm ²	1,8-2,3(1,6-2,5)		(4,6-5,5)		6,6-7,1(6,4-7,3)
Overflow delivery	rev/min	500				1250
	cm ³ /10 s	55-100(40-110)				55-100(40-110)

2.3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1360-1400 (1340-1420) 1330 1280-1300 1200 800 500	0 (25,0-35,0) Start 58,0-61,0 (57,0-62,0) (60,0-62,0) 51,0-54,0 (50,0-55,0)	
	Stop	1250	0	
Idle stop	Full	420-470 (400-490) 350	0 (15,0-23,0)	
	Start	100	mind.85,0	
End stop		220-320		

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J17

Angle to the stop-plate	Pre-setting dimensions
Pump $\alpha = 25 \pm 4^\circ$ $\beta = 40 \pm 8^\circ$ $\gamma = 30 \pm 8^\circ$ $\delta = 60 \pm 8^\circ$	Pump = 2,4 mm Dimension IV = 24,5 mm Dimension V

Testoil-ISO 4113

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 IHC 3,5 b 3

3. Edition
En

VA 4/100 H 1090 CR 84
0 460 304 180

supersedes 6.78
company IHC
engine D 206

Nozzle-and-holder assembly
1 688 901 020 (172+3 bar)

Pre-stroke setting 0,5 mm \pm 0,02 (\pm 0,04)
Plunger lift of 1,0 mm related to outlet "A"

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B
Pre-setting see reverse side

Testoil-ISO 4113

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1.1 Timing device travel	700	2,9-3,7 mm		
1.2 Supply pump pressure	700	4,8-5,3 kp/cm ²		
1.3 Full-load delivery without charge-air pressure	800	62,0-63,0 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1.4 Idle speed regulation	350	17,0-23,0 cm ³ /1000 strokes		3,0
1.5 Start 196 bar	100	mind. 90,0 cm ³ /1000 strokes		
1.6 Full-load speed regulation	1125	31,0-39,0 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2.1 Timing device	rev/min	Start				
	mm	220-350(190-380)	400	700	850	1090
		0,6-1,6(0,3-1,9)	(2,6-4,0)	3,8-4,8(3,5-5,1)	4,7-5,4(4,4-5,7)	
2.2 Supply pump	rev/min	200	700	1090		
	kp/cm ²	2,2-2,7(2,0-2,9)	(4,6-5,5)	6,3-6,8(6,1-7,0)		
Overflow delivery	rev/min	500		1090		
	cm ³ /10 s	55-100(40-110)		55-100(40-110)		

2.3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1085-1215 (1065-1235)	0	
		1125	(30,0-40,0)	
		1080	65,5-68,5 (64,5-69,5)	
		800	(61,5-63,5)	
		500	54,5-57,5 (53,5-58,5)	
	Stop	1090	0	
Idle stop	Full	460-520 (440-540)	0	
		350	(16,0-24,0)	
	Start	100 220-300	mind. 90,0	

J19

919

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Testoil-ISO 4113

Angle to the stop-plate	Pre-setting dimensions
Pump $\alpha = 25 \pm 4^\circ$ $\beta = 40 \pm 8^\circ$ $\gamma = 30 \pm 8^\circ$ $\delta = 60 \pm 8^\circ$	Pump Dimension IV = 2,4 mm Dimension V = 25,0 mm

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 JHC 5,1 c

3. Edition

En

VA 6/100 H 1150 BR 21
0 460 306 037

Nozzle-and-holder assembly
1 688 901 020 (172 + 3 bar)

supersedes 6.69
company JHC
engine D 310

Setting of the pointer at a stroke of 1 mm in
relation to outlet "A".

Pre-stroke setting 0,3 mm \pm 0,02 (\pm 0,04)

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B
Pre-setting see reverse side

Testoil-ISO 4113

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1.1 Timing device travel	1100	5,9-6,9 mm		
1.2 Supply pump pressure	1100	6,9-7,4 kp/cm ²		
1.3 Full-load delivery without charge-air pressure	800	61,5-62,5 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1.4 Idle speed regulation	300	7,0-13,0 cm ³ /1000 strokes		3,0
1.5 Start (mech.) 196 bar	100	mind. 90,0 cm ³ /1000 strokes		
1.6 Full-load speed regulation	1250	16,0-24,0 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2.1 Timing device	rev/min	560-720 (530-750)	1100	1110-1180
	mm	Start	(5,6-7,2)	6,7-7,4 (6,4-7,7)
2.2 Supply pump	rev/min	100	500	1100
	kp/cm ²	2,1-2,6 (1,9-2,8)	4,6-5,1 (4,4-5,3)	(6,7-7,6)
Overflow delivery	rev/min		1000	
	cm ³ /10 s		30-55 (15-70)	

2.3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1270-1320 (1250-1340)	0	
		1250	(15,0-25,0)	
		1140-1190	Start	
		1130	63,0-66,0 (62,0-67,0)	
		800	(61,0-63,0)	
		500	58,5-61,5 (57,5-62,5)	
	Stop	1150	0	
Idle stop	Full	340-390 (320-410)	0	
		300	(6,0-14,0)	
		100	mind. 90,0	
End stop	Start	500	max. 47,5	
		mind. 180		

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Angle to the stop-plate	Pre-setting dimensions
Pump $\alpha = 25 \pm 4^\circ$ $\beta = 40 \pm 8^\circ$ $\gamma = 30 \pm 8^\circ$ $\delta = 60 \pm 8^\circ$	Pump Dimension IV - mm Dimension V - mm

Testoil-ISO 4113

Screw plug 1 463 462 017
 Total length 24,0 mm

Dimension I = 7,0 mm
 Dimension II = 14,0 mm
 Dimension III = 35,8 mm
 Dimension IV = - mm

Screw plug 1 463 462 003
 Total length 32,0 mm

Dimension I = 7,0 mm
 Dimension II = 7,0 mm
 Dimension III = 27,8 mm
 see BMP 161/32

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 JHC 5,1 c 5

1. Edition

En

VA 6/100 H 1500 BR 20 Nozzle-and-holder assembly
0 460 306 036 1 688 901 020 (172 + 3 bar)

Setting of the pointer at a stroke of 1 mm in
relation to outlet "A".

supersedes 10.76
company JHC
engine D 310

Pre-stroke setting 0,4 mm \pm 0,02 (\pm 0,04)

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B
Pre-setting see reverse side

Testoil-ISO 4113

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1.1 Timing device travel	800	7,8-8,8 mm		
1.2 Supply pump pressure	800	5,1-5,6 kp/cm ²		
1.3 Full-load delivery without charge-air pressure	1000	71,0-72,0 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1.4 Idle speed regulation	250	12,0-18,0 cm ³ /1000 strokes		3,0
1.5 Start 196 bar	100	mind.70,0 cm ³ /1000 strokes		
1.6 Full-load speed regulation	1560	34,5-42,5 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2.1 Timing device	rev/min	250-400 (220-430)	800	1090-1240
	mm	Start	(7,5-9,1)	13,7-14,4 (13,4-14,7)
2.2 Supply pump	rev/min	100	800	1500
	kp/cm ²	1,3-1,8 (1,1-2,0)	(4,9-5,8)	7,5-8,0 (7,3-8,2)
Overflow delivery	rev/min	500		1500
	cm ³ /10 s	mind.25,0		85-125 (70-140)

2.3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1660-1780 (1640-1800)	0	
		1690	max. 5,0	
		1560	34,5-42,5 (33,5-43,5)	
		1480	58,0-62,0 (57,0-63,0)	
		1000	(70,5-72,5)	
		500	57,0-62,5 (56,0-63,5)	
	Stop	1500	0	
Idle stop	Full	300-370 (280-390)	0	
		250	(11,0-19,0)	
		100	mind.70,0	
End stop	Start	mind.180		

J23

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Angle to the stop-plate	Pre-setting dimensions
<p>Pump</p> $\alpha = 25 \pm 4^\circ$ $\beta = 50 \pm 8^\circ$ $\gamma = 30 \pm 8^\circ$ $\delta = 60 \pm 8^\circ$	<p>Pump</p> <p>Dimension IV = 1,0 mm</p> <p>Dimension V = 25,0 mm</p>

Testoil-ISO 4113

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 JHC 5,8 a 2

1. Edition

En

VA 6/100 H 1400 BR 19-2 Nozzle-and-holder assembly
0 460 306 119 1 688 901 020 (172 + 3 bar)

supersedes

company

engine

JHC

D 358/TOE

Setting of the pointer at a stroke of 1 mm in relation to outlet "A".

Pre-stroke setting $\pm 0,02\text{mm} (\pm 0,04)$

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Test Instructions and Test Equipment VDT-WPP 161/4 B

Pre-setting see reverse side

Testoil-ISO 4113

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1.1 Timing device travel	900	6,7-7,7 mm		
1.2 Supply pump pressure	900	4,6-5,1 kp/cm ²		
1.3 Full-load delivery without charge-air pressure	1200	77,0-78,0 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1.4 Idle speed regulation	350	13,0-19,0 cm ³ /1000 strokes		3,0
1.5 Start	100	mind. 90,0 cm ³ /1000 strokes		
1.6 Full-load speed regulation	1500	47,0-55,0 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2.1 Timing device	rev/min	330-480 (300-510)	900	1250-1500
	mm	Start	(6,4-8,0)	11,7-12,4 (11,4-12,7)
2.2 Supply pump	rev/min	100	900	1400
	kp/cm ²	0,8-1,3 (0,6-1,5)	(4,4-5,3)	6,2-6,7 (6,0-6,9)
Overflow delivery	rev/min	500		1000
	cm ³ /10 s	mind. 25		55-125 (40-140)

2.3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1570-1650 (1550-1670)	0	
		1500	(46,0-56,0)	
		1370	73,5-76,5 (72,5-77,5)	
		1200	(76,5-78,5)	
		900	70,5-73,5 (69,5-74,5)	
		500	62,5-66,5 (61,5-67,5)	
	Stop	1400	0	
Idle stop	Full	450-510 (430-530)	0	
		350	(12,0-20,0)	
		100	mind. 90,0	
End stop	Start	500	30,0-62,0	(29,0-63,0)
		mind. 180		

K1

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Angle to the stop-plate	Pre-setting dimensions
Pump $\alpha = 25 \pm 4^\circ$ $\beta = 55 \pm 8^\circ$ $\gamma = 30 \pm 8^\circ$ $\delta = 60 \pm 8^\circ$	Pump Dimension IV = - mm Dimension V = - mm

Testoil-ISO 4113

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 SAM 1,0 a

1. Edition

VA 4/110 H 1100 BR 158

0 460 314 011

supersedes

company Same

engine DA 1004

Nozzle-and-holder assembly
1 688 901 020 (172 + 3 bar)

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B
Pre-setting see reverse side

Pre-stroke setting 0,5 mm
Plunger lift of 1,0 mm related to outlet "A"

Testoil-ISO 4113

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1 1 Timing device travel	800	5,3-6,3 mm		
1 2 Supply pump pressure	800	4,5-5,0 kp/cm ²		
1 3 Full-load delivery without charge-air pressure	800	72,0-73,0 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1 4 Idle speed regulation	400	17,0-23,0 cm ³ /1000 strokes		3,0
1 5 Start	100	mind. 110 cm ³ /1000 strokes		
1 6 Full-load speed regulation	1150	38,5-46,5 cm ³ /1000 strokes		

2. Test Specifications

		Checking values in brackets		
2 1 Timing device	rev/min	350-500 (320-530)	800	900-1050
	mm	Start	(5,0-6,6)	8,7-9,4 (8,4-9,7)
		100	800	1100
2 2 Supply pump	rev/min	0,5-1,0 (0,3-1,2)	(4,3-5,2)	5,9-6,4 (5,7-6,6)
	kp/cm ²	500		1000
Overflow delivery	rev/min	mind. 25		55-125 (40-140)
	cm ³ /10 s			

2 3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1220-1280 (1200-1300)	0	
		1150	38,5-46,5 (37,5-47,5)	
		1050	72,0-75,0 (71,0-76,0)	
		800	(71,5-73,5)	
		500	68,5-71,5 (67,5-72,5)	
	Stop	1100	0	
Idle stop	Full	480-530 (460-550)		
		400	(16,0-24,0)	
		100	mind.110	
End stop	Start	110-210		

10.81

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K3

K3

Angle to the stop-plate	Pre-setting dimensions
<p>Pump</p> $\alpha = 25 \pm 4^\circ$ $\beta = 40 \pm 8^\circ$ $\gamma = 30 \pm 8^\circ$ $\delta = 60 \pm 8^\circ$	<p>Pump</p> <p>Dimension IV = - mm</p> <p>Dimension V = - mm</p>

Testoil-ISO 4113

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 GUL 2,3 b 1

1. Edition

En

VA 3/100 H 1000 BR 111
0 460 303 043

Nozzle-and-holder assembly
1 688 901 020 (172 + 3 bar)

supersedes

company

Guldner

engine

3 L 79

Setting of the pointer at a stroke of 1 mm in
relation to outlet "A".

Pre-stroke setting 0,1 mm \pm 0,02 (\pm 0,04)

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B
Pre-setting see reverse side

Testoil-ISO 4113

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1.1 Timing device travel	700	4,9-5,9 mm		
1.2 Supply pump pressure	700	4,9-5,4 kp/cm ²		
1.3 Full-load delivery without charge-air pressure	700	50,0-51,0 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1.4 Idle speed regulation	250	17,0-23,0 cm ³ /1000 strokes		3,0
1.5 Start	100	mind. 110,0 cm ³ /1000 strokes		
1.6 Full-load speed regulation	1050	15,0-24,0 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2.1 Timing device	rev/min	380-540 (350-570)	700	840-1000
	mm	Start	(4,6-6,2)	8,7-9,4 (8,4-9,7)
2.2 Supply pump	rev/min	100	700	1000
	kp/cm ²	1,3-1,8 (1,1-2,0)	(4,7-6,1)	6,0-6,5 (5,8-6,7)
Overflow delivery	rev/min	500		1000
	cm ³ /10 s	mind. 25		55-125 (40-140)

2.3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1050-1110 (1030-1130)	0	
		1050	(15,0-25,0)	
		930-1030	Start	
		980	54,0-57,0 (53,0-58,0)	
		700	(49,5-51,5)	
		500	42,0-45,0 (41,0-46,0)	
	Stop	1000	0	
Idle stop	Full	270-320 (250-340)	0	
		250	(16,0-24,0)	
	Start	100	mind. 110,0	
End stop		130-230		

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K5

Testoil-ISO 4113

Angle to the stop-plate	Pre-setting dimensions
Pump $\alpha = 25 \pm 4^\circ$ $\beta = 48 \pm 8^\circ$ $\gamma = 30 \pm 8^\circ$ $\delta = 60 \pm 8^\circ$	Pump Dimension IV = - mm Dimension V = - mm Dimension I = 7,0 mm Dimension II = 9,0 mm Dimension III = 30,8 mm

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 IHC 5,1 g 1

1. Edition

En

VA 6/100 H 1200 BR 51-1

0 460 306 081

Nozzle-and-holder assembly
1 688 901 020 (172 + 3 bar)

supersedes

company

IHC

engine

D 358 DU

Pre-stroke setting 0,3 mm
Plunger lift of 1,0 mm related to outlet "A"

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B
Pre-setting see reverse side

Testoil-ISO 4113

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1.1 Timing device travel	1100	5,6-6,6 mm		
1.2 Supply pump pressure	1100	6,3-6,8 kp/cm ²		
1.3 Full-load delivery without charge-air pressure	800	66,6-67,6 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1.4 Idle speed regulation	300	12,0-18,0 cm ³ /1000 strokes		3,0
1.5 Start (mech.) 196 bar	100	mind. 90,0 cm ³ /1000 strokes		
1.6 Full-load speed regulation	1250	41,0-49,0 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2.1 Timing device	rev/min	560-720 (530-750)	1100	1110-1210
	mm	Start	(5,3-6,9)	6,7-7,4 (6,4-7,7)
2.2 Supply pump	rev/min	100	1100	
	kp/cm ²	1,4-1,9 (1,2-2,1)	(6,0-7,1)	
Overflow delivery	rev/min	500	1000	
	cm ³ /10 s	mind. 25	55-125 (40-140)	

2.3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1320-1370 (1300-1390)	0	
		1250	(40,0-50,0)	
		1150	69,5-72,5 (68,5-73,5)	
		800	(66,0-68,0)	
		500	63,0-66,0 (62,0-67,0)	
	Stop	1200	0	
Idle stop	Full	360-410 (340-430)	0	
		300	(11,0-19,0)	
End stop	Start	100	mind. 90,0	
		500	max. 55,0	

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Angle to the stop-plate	Pre-setting dimensions
Pump $\alpha = 25 \pm 4^\circ$ $\beta = 40 \pm 8^\circ$ $\gamma = 30 \pm 8^\circ$ $\delta = 60 \pm 8^\circ$	Pump = 2,0 mm Dimension IV = - mm Dimension V

Testoil-ISO 4113

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 IHC 3,5 n

1. Edition

En

VA 4/100 H 1250 BR 64 -P
0 460 304 117

supersedes

company

IHC

engine

D 209

Nozzle-and-holder assembly
1 688 901 020 (172 + 3 bar)

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B
Pre-setting see reverse side

Pre-stroke setting 0,5 mm
Plunger lift of 1,0 mm related to outlet "A"

Testoil-ISO 4113

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1.1 Timing device travel	800	8,8-9,8 mm		
1.2 Supply pump pressure	800	4,9-5,4 kp/cm ²		
1.3 Full-load delivery without charge-air pressure	800	57,0-58,0 cm ³ /1000 strokes		
Full-load delivery with charge-air pressure	--	cm ³ /1000 strokes		
1.4 Idle speed regulation	350	12,0-18,0 cm ³ /1000 strokes		
1.5 Start	100	mind. 90,0 cm ³ /1000 strokes		
1.6 Full-load speed regulation	1300	38,0-46,0 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2.1 Timing device	rev/min	200-350 (170-380)	800	1050-1200
	mm	Start	(8,5-10,1)	13,7-14,4 (13,4-14,7)
2.2 Supply pump	rev/min	100	800	1250
	kp/cm ²	1,3-1,8 (1,1-2,0)	(4,7-5,6)	6,5-7,0 (6,3-7,2)
Overflow delivery	rev/min	500	1000	
	cm ³ /10 s	mind. 25	55-125 (40-140)	

2.3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1330-1380 (1310-1400)	0	
		1300	(37,0-47,0)	
		1200	58,5-61,5 (57,5-62,5)	
		800	(56,5-58,5)	
		500	48,5-51,5 (47,5-52,5)	
	Stop	1250	0	
Idle stop	Full	390-440 (370-460)	0	
		350	(11,0-19,0)	
		100	mind. 90,0	
End stop	Start	500	30,0-50,0	
		mind. 180		

K9

K9

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Angle to the stop-plate	Pre-setting dimensions
<p>Pump $\alpha = 25 \pm 4^\circ$ $\beta = 40 \pm 8^\circ$ $\gamma = 30 \pm 8^\circ$ $\delta = 60 \pm 8^\circ$</p>	<p>Pump Dimension IV = - mm Dimension V = - mm</p>

Testoil-ISO 4113

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 GUL 3,1 a 1

1. Edition

En

VA 4/100 H 1250 BR 106-1
0 460 304 051

supersedes

company

engine

Guldner
4 L 79

Nozzle-and-holder assembly
1 688 901 020 (172 + 3 bar)

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B

Pre-setting see reverse side

Pre-stroke setting 0,1 mm
Plunger lift of 1,0 mm related to outlet "A"

Testoil-ISO 4113

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1.1 Timing device travel	700	4,5-5,5 mm		
1.2 Supply pump pressure	1150	5,6-6,1 kp/cm ²		
1.3 Full-load delivery without charge-air pressure	800	54,0-55,0 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1.4 Idle speed regulation	250	14,0-17,0 cm ³ /1000 strokes		3,0
1.5 Start	100	mind.100,0 cm ³ /1000 strokes		
1.6 Full-load speed regulation	1270	16,0-24,0 cm ³ /1000 strokes		

2. Test Specifications		Checking values in brackets		
2.1 Timing device	rev/min	350-510 (320-540)	700	990-1150
	mm	Start	(4,2-5,8)	10,7-11,4 (10,4-11,7)
2.2 Supply pump	rev/min	100	200	1150
	kp/cm ²	0,9-1,4 (0,7-1,6)	3,9-4,4 (3,7-4,6)	(5,4-6,3)
Overflow delivery	rev/min			1000
	cm ³ /10 s			55-125 (40-140)
2.3 Fuel deliveries				
Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1275-1325 (1255-1345)	0	
		1270	(15,0-25,0)	
		1130	56,5-59,5 (55,5-60,5)	
		800	(53,5-55,5)	
		500	44,5-47,5 (43,5-48,5)	
	Stop	1250	0	
Idle stop	Full	280-330 (260-350)	0	
		250	(10,0-18,0)	
	Start	100	mind.100,0	
End stop		130-230		

K11

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Testoil-ISO 4113

Angle to the stop-plate	Pre-setting dimensions
Pump = $25 \pm 4^\circ$ α = $40 \pm 8^\circ$ β = $30 \pm 8^\circ$ γ = $60 \pm 8^\circ$	Pump Dimension IV = - mm Dimension V = - mm Dimension I = 7,0mm Dimension II = 11,0mm Dimension III = 32,8mm

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 GUL 2,3 a 1

1. Edition

En

VA 3/100 H 1250 BR 105-1
0 460 303 042

supersedes

company

Guldner

engine

3 L 79

Nozzle-and-holder assembly
1 688 901 020 (172 + 3 bar)

Pre-stroke setting 0,1 mm \pm 0,02 (\pm 0,04)
Plunger lift of 1,0 mm related to outlet "A"

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B
Pre-setting see reverse side

Testoil-ISO 4113

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1 1 Timing device travel	700	5,5-6,5 mm		
1 2 Supply pump pressure	700	4,2-4,7 kp/cm ²		
1 3 Full-load delivery without charge-air pressure	800	57,0-58,0 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1 4 Idle speed regulation	250	11,0-17,0 cm ³ /1000 strokes		3,0
1 5 Start	100	mind. 100,0 cm ³ /1000 strokes		
1 6 Full-load speed regulation	1300	16,0-24,0 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2 1 Timing device	rev/min	330-540 (300-570)	700	1000-1130
	mm	Start	(5,2-6,8)	10,7-11,4 (10,4-11,7)
2 2 Supply pump	rev/min	100	700	1250
	kp/cm ²	0,9-1,4 (0,7-1,6)	(4,0-4,9)	5,8-6,3 (5,6-6,5)
Overflow delivery	rev/min	500	1250	1250
	cm ³ /10 s	mind. 25	55-125 (40-140)	

2 3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1330-1380 (1310-1400) 1300 1130 800 500	0 (15,0-25,0) 60,0-63,0 (59,0-64,0) (56,5-58,5) 47,5-50,5 (46,5-51,5)	
	Stop	1250	0	
Idle stop	Full	290-340 (270-360) 250	0 (10,0-18,0)	
	Start	100	mind. 100,0	
End stop		120-230		

K13

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Angle to the stop-plate	Pre-setting dimensions
<p>Pump</p> $\alpha = 25 \pm 4^\circ$ $\beta = 55 \pm 8^\circ$ $\gamma = 30 \pm 8^\circ$ $\delta = 60 \pm 8^\circ$	<p>Pump</p> <p>Dimension IV = 1,0 mm (see BMP 161/32)</p> <p>Dimension V = - mm</p> <p>Dimension I = 7,0 mm</p> <p>Dimension II = 11,0 mm</p> <p>Dimension III = 32,8 mm</p>

Testoil-ISO 4113

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 IHC 3,5 c

2. Edition

En

VA 4/100 H 1150 BR 46

0 460 304 080

supersedes 10.69

company IHC

engine D 206

Nozzle-and-holder assembly
1 688 901 020 (172 + 3 bar)

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers

Test Instructions and Test Equipment
VDT-WPP 161/4 B

Pre-setting see reverse side

Pre-stroke setting 0,5 mm

Plunger lift of 1,0 mm related to outlet "A"

Testoil-ISO 4113

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1 1 Timing device travel	800	9,3-10,3 mm		
1 2 Supply pump pressure	800	5,0-5,5 kp/cm ²		
1 3 Full-load delivery without charge-air pressure	800	64,0-65,0 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1 4 Idle speed regulation	350	17,0-23,0 cm ³ /1000 strokes		3,0
1 5 Start	100	mind. 85 cm ³ /1000 strokes		
1 6 Full-load speed regulation	1200	37,0-43,0 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2 1 Timing device	rev/min	250-400 (220-430)	800	950-1100
	mm	Start	(9,0-10,6)	13,7-14,4 (13,4-14,7)
2 2 Supply pump	rev/min	100	800	1150
	kp/cm ²	1,0-1,5 (0,8-1,7)	(4,8-5,7)	6,4-6,9 (6,2-7,1)
Overflow delivery	rev/min	500	1000	
	cm ³ /10 s	mind. 25	55-125 (40-140)	

2 3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1270-1320 (1250-1340)	0	
		1200	(36,0-44,0)	
		1100	67,5-69,5 (66,5-70,5)	
		800	(63,5-65,5)	
		500	56,5-59,5 (55,5-60,5)	
	Stop	1150	0	
Idle stop	Full	410-460 (390-480)	0	
		350	(16,0-24,0)	
		100	mind. 85	
End stop	Start	500	34,0-45,0 (33,0-46,0)	
		mind. 150		

K15

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415

Angle to the stop-plate	Pre-setting dimensions
Pump $\alpha = 25 \pm 4^\circ$ $\beta = 35 \pm 8^\circ$ $\gamma = 30 \pm 8^\circ$ $\delta = 60 \pm 8^\circ$	Pump Dimension IV = 2,0 mm BMP 161/32 Dimension V = - mm

Testoil-ISO 4113

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 IHC 3,9 a 4

2. Edition

En

VA 4/100 H 1100 BR 12-2 Nozzle-and-holder assembly
0 460 304 079 1 688 901 020 (172 + 3 bar)

supersedes 5.77
company IHC
engine D 239-544 CD

Setting of the pointer at a stroke of 1 mm in relation to outlet "A".

Pre-stroke setting 0,5 mm \pm 0,02 (\pm 0,04)

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B
Pre-setting see reverse side

Testoil-ISO 4113

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1.1 Timing device travel	700	9,0-10,0 mm		
1.2 Supply pump pressure	700	4,7-5,2 kp/cm ²		
1.3 Full-load delivery without charge-air pressure	800	61,5-62,5 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1.4 Idle speed regulation	350	12,0-18,0 cm ³ /1000 strokes		3,0
1.5 Start	100	mind.100 cm ³ /1000 strokes		
1.6 Full-load speed regulation	1150	36,5-44,5 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2.1 Timing device	rev/min	150-300 (120-330)	700	930-1080
	mm	Start	(8,7-10,3)	13,7-14,4 (13,4-14,7)
2.2 Supply pump	rev/min	100	700	1100
	kp/cm ²	1,2-1,7 (1,0-1,9)	(4,5-5,4)	6,1-6,6 (5,9-6,8)
Overflow delivery	rev/min	500		1000
	cm ³ /10 s	mind.25		55-125 (40-140)

2.3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1200-1250 (1180-1270)	0	
		1150	(35,5-45,5)	
		1100	61,5-64,5 (60,5-65,5)	
		800	(61,0-62,0)	
		500	56,5-59,5 (55,5-60,5)	
	Stop	1100	0	
Idle stop	Full	370-450 (340-480)	0	
		350	(11,0-19,0)	
		100	mind.100	
	Start	500	35,0-50,0 (34,0-51,0)	
End stop		mind.180		

K17

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Testoil-ISO 4113

Angle to the stop-plate	Pre-setting dimensions
Pump $\alpha = 25 \pm 4^\circ$ $\beta = 40 \pm 8^\circ$ $\gamma = 30 \pm 8^\circ$ $\delta = 60 \pm 8^\circ$	Pump Dimension IV = 0,5 mm Dimension V = - mm Dimension I = 7,0 mm Dimension II = 14,0 mm Dimension III = 35,8 mm

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 IHC 3,9 a 3

2. Edition

En

VA 4/100 H 1200 BR 12-1 0 460 304 078
BR 12-9 0 460 304 159

Setting of the pointer at a stroke of 1 mm in
relation to outlet "A".

Nozzle-and-holder assembly
1 688 901 020 (172 + 3 bar)

Pre-stroke setting 0,5 mm ± 0,02 (± 0,04)

supersedes 5.77

company IHC

engine D 239-544 HS

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers

Test Instructions and Test Equipment
VDT-WPP 161/4 B

Pre-setting see reverse side

Testoil-ISO 4113

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1.1 Timing device travel	700	8,7-9,7 mm		
1.2 Supply pump pressure	700	4,5-5,0 kp/cm ²		
1.3 Full-load delivery without charge-air pressure	800	69,5-70,5 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1.4 Idle speed regulation	350	17,0-23,0 cm ³ /1000 strokes		3,0
1.5 Start	100	mind.100,0 cm ³ /1000 strokes		
1.6 Full-load speed regulation	1240	41,0-49,0 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2.1 Timing device	rev/min	200-350 (170-380)	700	980-1130
	mm	Start	(8,4-10,0)	13,7-14,4 (13,4-14,7)
		100	700	1200
2.2 Supply pump	rev/min	1,2-1,7 (1,0-1,9)	(4,3-5,2)	6,5-7,0 (6,3-7,2)
	kp/cm ²	500		1200
Overflow delivery	rev/min	mind.25		55-125 (40-140)
	cm ³ /10 s			

2.3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1260-1310 (1240-1330) 1240 1150 800 500	0 (40,0-50,0) 71,0-73,0 (70,0-74,0) (69,0-71,0) 66,0-69,0 (65,0-70,0)	
	Stop	1200	0	
Idle stop	Full	430-500 (410-520) 350	0 (16,0-24,0)	
End stop	Start	100 mind. 180	mind.100	

K19

419

BOSCH

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Angle to the stop-plate	Pre-setting dimensions
Pump $\alpha = 25 \pm 4^\circ$ $\beta = 40 \pm 8^\circ$ $\gamma = 30 \pm 8^\circ$ $\delta = 60 \pm 8^\circ$	Pump Dimension IV = 0,5 mm Dimension V = - mm Dimension I = 7,0 mm Dimension II = 14,0 mm Dimension III = 35,8 mm

Testoil-ISO 4113

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 IHC 3,9 c

2. Edition
En

VA 4/100 H 1250 BR 67

0 460 304 121

supersedes 6.70
company IHC
engine D 239

Nozzle-and-holder assembly
1 688 901 020 (172 + 3 bar)

Pre-stroke setting 0,5 mm

Plunger lift of 1,0 mm related to outlet "A"

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B
Pre-setting see reverse side

Testoil-ISO 4113

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1 1 Timing device travel	800	8,8-9,8 mm		
1 2 Supply pump pressure	800	4,9-5,4 kp/cm ²		
1 3 Full-load delivery without charge-air pressure	800	67,5-68,5 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1 4 Idle speed regulation	350	12,0-18,0 cm ³ /1000 strokes		3,0
1 5 Start (mech.) 196 bar	100	mind.90,0 cm ³ /1000 strokes		
1 6 Full-load speed regulation	1330	28,5-36,5 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2 1 Timing device	rev/min	200-350 (170-380)	800	1050-1200
	mm	Start	(8,5-10,1)	13,7-14,4 (13,4-14,7)
		100	800	1250
2 2 Supply pump	rev/min	1,3-1,8 (1,1-2,0)	(4,7-5,6)	6,5-7,0 (6,3-7,2)
	kp/cm ²			
3		500	1000	
Overflow delivery	rev/min	mind.25	55-125 (40-140)	
	cm ³ /10 s			

2.3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1350-1400 (1330-1420)	0	
		1330	(27,5-37,5)	
		1200	63,0-66,0 (62,0-67,0)	
		800	(67,0-69,0)	
		500	64,5-67,5 (63,5-68,5)	
	Stop	1250	0	
Idle stop	Full	390-440 (370-460)	0	
		350	(11,0-19,0)	
		100	mind.90,0	
		500	max. 35,0-60,0	
End stop		mind.180		

K21

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Angle to the stop-plate	Pre-setting dimensions
Pump $\alpha = 25 \pm 4^\circ$ $\beta = 40 \pm 8^\circ$ $\gamma = 30 \pm 8^\circ$ $\delta = 60 \pm 8^\circ$	Pump Dimension IV = 0,5 mm Dimension V = - mm

Testoil-ISO 4113

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 IHC 3,5 m

1. Edition

En

VA 4/100 H 1250 BR 64-1
0 460 304 119

supersedes

company

IHC

D 209

engine

Nozzle-and-holder assembly

1 688 901 020 (172 + 3 bar)

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers

Test Instructions and Test Equipment

VDI-WPP 161/4 B

Pre-setting see reverse side

Pre-stroke setting 0,5 mm
Plunger lift of 1,0 mm related to outlet "A"

Testoil-ISO 4113

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1.1 Timing device travel	800	8,8-9,8 mm		
1.2 Supply pump pressure	800	4,9-5,4 kp/cm ²		
1.3 Full-load delivery without charge-air pressure	800	52,5-53,5 cm ³ /1000 strokes		
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1.4 Idle speed regulation	350	12,0-18,0 cm ³ /1000 strokes		
1.5 Start	100	mind.90,0 cm ³ /1000 strokes		
1.6 Full-load speed regulation	1300	32,0-38,0 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2.1 Timing device	rev/min	200-350(170-380)	800	1050-1200
	mm	Start	(8,5-10,1)	13,7-14,4(13,4-14,7)
		100	800	1250
2.2 Supply pump	rev/min			
	kp/cm ²	1,3-1,8(1,1-2,0)	(4,7-5,6)	6,5-7,0(6,3-7,2)
		500	1000	
Overflow delivery	rev/min			
	cm ³ /10 s	mind. 25	55-125(40-140)	

2.3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1320-1370 (1300-1390)	0	
		1300	(31,0-39,0)	
		1200	48,5-51,5 (47,5-52,5)	
		800	(52,0-54,0)	
		500	46,0-49,0 (45,0-50,0)	
	Stop	1250	0	
Idle stop	Full	390-440 (370-460)	0	
		350	(11,0-19,0)	
		100	mind.90,0	
	Start	500	30,0-45,0 (29,0-46,0)	
End stop		mind.180		

K23

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k23

Angle to the stop-plate	Pre-setting dimensions
Pump $\alpha = 25 \pm 4^\circ$ $\beta = 40 \pm 8^\circ$ $\gamma = 30 \pm 8^\circ$ $\delta = 60 \pm 8^\circ$	Pump Dimension IV \approx - mm Dimension V \approx - mm

Testoil-ISO 4113

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 DEE 2,5 i

1. Edition

En

VA 3/100 H 1250 BR 26-1

0 460 303 050

supersedes

company

engine

John Deere

44 B

Nozzle-and-holder assembly
1 688 901 020 (172 + 3 bar)

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B

Pre-setting see reverse side

Pre-stroke setting 0,3 mm \pm 0,02 (\pm 0,04)

Testoil-ISO 4113

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1 1 Timing device travel	800	7,8-8,8 mm		
1 2 Supply pump pressure	800	5,0-5,5 kp/cm ²		
1 3 Full-load delivery without charge-air pressure	1100	70,0-71,0 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1 4 Idle speed regulation	400	9,0-15,0 cm ³ /1000 strokes		3,0
1 5 Start	--	-- cm ³ /1000 strokes		
1 6 Full-load speed regulation	1300	38,0-46,0 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2 1 Timing device	rev/min	160-330 (130-360)	800	1030-1180
	mm	Start	(7,5-9,1)	12,2-12,9(11,9-13,2)
2 2 Supply pump	rev/min	100	800	1250
	kp/cm ²	1,3-1,8(1,1-2,0)	(4,8-5,7)	7,0-7,5(6,8-7,7)
Overflow delivery	rev/min	500	1000	
	cm ³ /10 s	mind. 27	55-125(40-140)	

2 3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1360-1460 (1340-1480)	0	
		1400	max. 5,0	
		1300	(37,0-47,0)	
		1200	68,0-71,0 (67,0-72,0)	
		1100	(69,5-71,5)	
		500	58,0-62,0 (57,0-63,0)	
		100	mind. 45,5	
	Stop	1250	0	
Idle stop	Full	520-580 (500-600)	0	
		400	(8,0-10,0)	
End stop	Start			

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Angle to the stop-plate	Pre-setting dimensions
Pump $\alpha = 25 \pm 4^\circ$ $\beta = 44 \pm 8^\circ$ $\gamma = 30 \pm 8^\circ$ $\delta = 60 \pm 8^\circ$	Pump = 2,5 mm Dimension IV = - mm Dimension V = 7,0 mm Dimension I = 12,0 mm Dimension II = 28,3 mm Dimension III

Testoil-ISO 4113

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 DEE 2,5 h

1. Edition

En

VA 3/100 H 1250 BR 26

0 460 303 034

supersedes

company

engine

John Deere

152 D 27 D

Nozzle-and-holder assembly
1 688 901 020 (172 + 3 bar)

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B
Pre-setting see reverse side

Pre-stroke setting

mm

Testoil-ISO 4113

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1 1 Timing device travel	800	7,8-8,8 mm		
1 2 Supply pump pressure	800	5,0-5,5 kp/cm ²		
1 3 Full-load delivery without charge-air pressure	1150	64,0-66,0 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1 4 Idle speed regulation	400	9,0-15,0 cm ³ /1000 strokes		3,0
1 5 Start	--	-- cm ³ /1000 strokes		
1 6 Full-load speed regulation	1310	31,0-39,0 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2 1 Timing device	rev/min	160-330 (130-360)	800	1030-1180
	mm	Start	(7,5-9,1)	11,7-12,4 (11,4-12,7)
2 2 Supply pump	rev/min	100	800	1250
	kp/cm ²	1,3-1,8 (1,1-2,0)	(4,8-5,7)	7,0-7,5 (6,8-7,7)
Overflow delivery	rev/min	500	1000	
	cm ³ /10 s	mind.25	55-125 (40-140)	
2 3 Fuel deliveries				
Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1340-1430 (1320-1450)	0	
		1380	max.6,0	
		1310	(30,0-40,0)	
		1230	59,0-61,0 (58,0-62,0)	
		1150	(63,5-66,5)	
		800	58,0-62,0 (57,0-63,0)	
		100	mind.38,0	
	Stop	1250	0	
Idle stop	Full	520-580 (500-600)	0	
		400	(8,0-16,0)	
End stop	Start			

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L3

L3

Angle to the stop-plate	Pre-setting dimensions
Pump $\alpha = 25 \pm 4^\circ$ $\beta = 50 \pm 8^\circ$ $\gamma = 30 - 8^\circ$ $\delta = 60 \pm 8^\circ$	Pump Dimension IV = 2,5 mm Dimension V = - mm Dimension I = 7,0 mm Dimension II = 12,0 mm Dimension III = 28,3 mm

Testoil-ISO 4113

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 IHC 5,1 d 2

1. Edition

En

VA 6/100 H 1200 BR 44-1
0 460 306 105

supersedes
company IHC
engine D 310

Nozzle-and-holder assembly
1 688 901 020 (172 + 3 bar)

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B
Pre-setting see reverse side

Testoil-ISO 4113

Pre-stroke setting 0,3 mm
Plunger lift of 1,0 mm related to outlet "A"

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1 1 Timing device travel	900	4,8-5,8 mm		
1 2 Supply pump pressure	900	6,0-6,5 kp/cm ²		
1 3 Full-load delivery without charge-air pressure	800	60,0-61,0 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1 4 Idle speed regulation	500	9,5-15,5 cm ³ /1000 strokes		3,0
1 5 Start	100	mind.95,0 cm ³ /1000 strokes		
1 6 Full-load speed regulation	1300	22,0-28,0 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2 1 Timing device	rev/min	500-650 (470-680)	900	
	mm	Start	(4,5-6,1)	
2 2 Supply pump	rev/min	100	900	1200
	kp/cm ²	1,8-2,3(1,6-2,5)	(5,8-6,7)	7,0-7,5(6,8-7,7)
Overflow delivery	rev/min		1000	
	cm ³ /10 s		55-125(40-140)	

2 3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1330-1380 (1310-1400) 1300 1180 800 500	0 (21,0-29,0) 63,0-66,0 (62,0-67,0) (59,0-61,5) 55,5-58,5 (54,5-59,5)	
	Stop	1200	0	
Idle stop	Full	530-580 (510-600) 500	0 (8,5-16,5)	
	Start	100 500	mind.95,0 max. 30,0	
End stop		mind.150		

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L5

L5

Angle to the stop-plate	Pre-setting dimensions
Pump $\alpha = 25 \pm 4^\circ$ $\beta = 40 \pm 8^\circ$ $\gamma = 30 \pm 8^\circ$ $\delta = 60 \pm 8^\circ$	Pump Dimension IV = 2,5 mm Dimension V = - mm

Testoil-ISO 4113

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 IHC 2,4 a 4

1. Edition

En

VA 3/100 H 950 BR 43 0 460 303 040
BR 43-1 0 460 303 115

supersedes

company IHC
engine D 155

Nozzle and-holder assembly
1 688 901 020 (172 + 3 bar)

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B
Pre-setting see reverse side

Pre-stroke setting 0,3 mm \pm 0,02 (\pm 0,04)
Plunger lift of 1,0 mm related to outlet "A"

Testoil-ISO 4113

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1 1 Timing device travel	500	7,3-8,3 mm		
1 2 Supply pump pressure	500	5,0-5,5 kp/cm ²		
1 3 Full-load delivery without charge-air pressure	700	55,5-56,5 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1 4 Idle speed regulation	400	15,0-21,0 cm ³ /1000 strokes		3,0
1 5 Start 196 bar	100	mind. 90,0 cm ³ /1000 strokes		
1 6 Full-load speed regulation	1000	18,5-26,5 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2 1 Timing device	rev/min	120-270 (90-300)	500	740-900
	mm	Start	(7,0-8,6)	12,7-13,4 (12,4-13,7)
2 2 Supply pump	rev/min	100	500	950
	kp/cm ²	1,8-2,3 (1,6-2,5)	(4,8-5,7)	6,9-7,4 (6,7-7,6)
Overflow delivery	rev/min	500	950	1000
	cm ³ /10 s	mind. 27,0	55-125 (40-135)	55-125 (40-135)

2 3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1010-1060 (990-1080)	0	
		1000	(17,5-27,5)	
		900	57,5-60,5 (56,5-61,5)	
		700	(55,0-57,0)	
		500	50,0-54,0 (49,0-55,0)	
	Stop	950	0	
Idle stop	Full	460-510 (440-530)	0	
		400	(14,0-22,0)	
		500	35,0-45,0 (34,0-46,0)	
		100	mind. 90,0	
		500	35,0-45,0 (34,0-46,0)	
End stop		mind. 150,0		

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L7

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Testoil-ISO 4113

Angle to the stop-plate	Pre-setting dimensions
<p>Pump</p> <p>$\alpha = 25 \pm 4^\circ$</p> <p>$\beta = 37 \pm 8^\circ$</p> <p>$\gamma = 30 - 8^\circ$</p> <p>$\delta = 60 \pm 8^\circ$</p>	<p>Pump</p> <p>Dimension IV = 2,0 mm</p> <p>Dimension V = - mm</p>

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 IHC 5,1 b

3. Edition
En

VA 6/100 H 1100 BR 37
0 460 306 039

supersedes 12.70
company IHC
engine D 310

Nozzle-and-holder assembly
1 688 901 020 (172 + 3 bar)

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B
Pre-setting see reverse side

Testoil-ISO 4113

Pre-stroke setting 0,3 mm
Plunger lift of 1,0 mm related to outlet "A"

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1.1 Timing device travel	700	5,5-6,5 mm		
1.2 Supply pump pressure	700	5,5-6,0 kp/cm ²		
1.3 Full-load delivery without charge-air pressure	800	62,5-63,5 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1.4 Idle speed regulation	250	30,0-36,0 cm ³ /1000 strokes		3,0
1.5 Start	100	mind.95,0 cm ³ /1000 strokes		
1.6 Full-load speed regulation	1150	36,0-44,0 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2.1 Timing device	rev/min	260-420(230-450)	700	920-1080
	mm	Start	(5,2-6,8)	9,7-10,4(9,4-10,7)
2.2 Supply pump	rev/min	100	700	1100
	kp/cm ²	1,2-1,7(1,0-1,9)	(5,3-6,2)	6,0-7,4(6,7-7,6)
Overflow delivery	rev/min	500	1000	
	cm ³ /10 s	mind.25	55-125(40-140)	

2.3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1200-1250 (1180-1270) 1150 1050 800 500	0 (35,0-45,0) 65,0-68,0 (64,0-69,0) (62,0-64,0) 60,0-63,0 (59,0-64,0)	
	Stop	1100	0	
Idle stop	Full	370-420 (350-440) 250	0 (29,0-37,0)	
	Start	100 500	mind.95,0 max. 45,0	
End stop		mind.150		

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Testoil-ISO 4113

Angle to the stop-plate	Pre-setting dimensions
Pump $\alpha = 25 \pm 4^\circ$ $\beta = 40 \pm 8^\circ$ $\gamma = 30 - 8^\circ$ $\delta = 60 \pm 8^\circ$	Pump = 5,5 mm Dimension IV = - mm Dimension V = - mm

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 IHC 5,8 D 2

1. Edition

En

VA 6/100 H 1125 BR 36-1

0 460 306 123

Nozzle-and-holder assembly
1 688 901 020 (172 + 3 bar)

supersedes

company IHC

engine D 358

Pre-stroke setting 0,3 mm

Plunger lift of 1,0 mm related to outlet "A"

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers

Test Instructions and Test Equipment:

VDI-WPP 161/4 B

Pre-setting see reverse side

Testoil-ISO 4113

1. Settings	rev/min	Settings	Charge air press kp/cm ²	Difference in delivery cm ³
1.1 Timing device travel	700	5,3-6,3 mm		
1.2 Supply pump pressure	700	5,4-5,9 kp/cm ²		
1.3 Full-load delivery without charge-air pressure	800	70,0-71,0 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1.4 Idle speed regulation	250	17,0-23,0 cm ³ /1000 strokes		3,0
1.5 Start	100	mind. 90,0 cm ³ /1000 strokes		
1.6 Full-load speed regulation	1225	25,0-34,0 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2.1 Timing device	rev/min	350-500 (320-530)	700	940-1100
	mm	Start	(5,0-6,6)	9,7-10,4 (9,4-10,7)
		100	700	1125
2.2 Supply pump	rev/min			
	kp/cm ²	1,1-1,6 (0,9-1,8)	(5,2-6,1)	6,9-7,4 (6,7-7,6)
		500	1000	
Overflow delivery	rev/min			
	cm ³ /10 s	mind. 25	55-125 (40-140)	

2.3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1295-1350 (1275-1370)	0	
		1225	(25,0-35,0)	
		800	71,0-74,0 (70,0-75,0)	
		800	(69,5-71,5)	
		500	65,0-68,0 (64,0-69,0)	
	Stop	1125	0	
Idle stop	Full	370-450 (350-470)	0	
		250	(16,0-24,0)	
		100	mind. 90,0	
	Start	500	30,0-70,0 (29,0-71,0)	
End stop		mind. 150		

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Angle to the stop-plate	Pre-setting dimensions
Pump $\alpha = 25 \pm 4^\circ$ $\beta = 30 \pm 8^\circ$ $\gamma = 30 \pm 8^\circ$ $\delta = 60 \pm 8^\circ$	Pump Dimension IV = 3,6 mm Dimension V = 24,6 mm

Testoil-ISO 4113

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 DEE 2,5 f

3. Edition

En

VA 3/100 H 1200 ER 29

Nozzle-and-holder assembly

1 688 901 020 (172 + 3 bar)

0 460 303 036

supersedes 12.71

company John Deere

engine X 21

Adjustment of the pointer at plunger stroke 1.72 mm, related to outlet "A", corresponds to TDC position of relevant cylinder.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Test Instructions and Test Equipment

VDI-WPP 161/4 B

Pre-setting see reverse side

Pre-stroke setting 0,3 mm

Testoil-ISO 4113

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1.1 Timing device travel	700	6,3-7,3 mm		
1.2 Supply pump pressure	700	4,3-4,8 kp/cm ²		
1.3 Full-load delivery without charge-air pressure	1100	61,0-62,0 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1.4 Idle speed regulation	400	9,0-15,0 cm ³ /1000 strokes		3,0
1.5 Start	--	-- cm ³ /1000 strokes		
1.6 Full-load speed regulation	1260	26,0-34,0 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2.1 Timing device	rev/min	100-310(70-340)	700	1050-1200
	mm	Start	(6,0-7,6)	11,7-12,4(11,4-12,7)
		100	700	1200
2.2 Supply pump	rev/min	1,7-2,2(1,5-2,4)	(4,1-5,0)	6,0-6,5(5,8-6,7)
	kp/cm ²	500	1000	
Overflow delivery	rev/min	mind. 25,0	55-125(40-140)	
	cm ³ /10 s			

2.3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1330-1370 (1310-1390)	0	
		1320	max. 5,0	
		1260	(25,0-35,0)	
		1180	57,5-59,5	(56,5-60,5)
		1100	(60,5-62,5)	
		700	54,0-57,0	(53,0-58,0)
		100	mind. 35,0	
	Stop	1200	0	
Idle stop	Full	520-580 (500-600)	0	
		400	(8,0-16,0)	
End stop	Start	--	--	
		--	--	

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Testoil-ISO 4113

Angle to the stop-plate	Pre-setting dimensions
Pump $\alpha = 25 \pm 4^\circ$ $\beta = 40 \pm 8^\circ$ $\gamma = 30 \pm 8^\circ$ $\delta = 60 \pm 8^\circ$	Pump Dimension IV = -- mm Dimension V = -- mm Dimension I = 7,0mm Dimension II = 12,0mm Dimension III = 28,3mm

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 IHC 3,9 b 2

1. Edition
En

VA 4/100 H 1050 BR 12-5

Nozzle-and-holder assembly
1 688 901 020 (172+3 bar)

supersedes

company IHC

engine D 206 charger 100

0 460 304 109

Setting of the pointer at a stroke of 1 mm in
relation to outlet "A".

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers

Test Instructions and Test Equipment
VDT-WPP 161/4 B

Pre-setting see reverse side

Pre-stroke setting 0,5 mm \pm 0,02 (\pm 0,04)

Testoil-ISO 4113

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1 1 Timing device travel	600	5,3-6,3 mm		
1 2 Supply pump pressure	600	4,1-4,6 kp/cm ²		
1 3 Full-load delivery without charge-air pressure	900	61,5-62,5 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1 4 Idle speed regulation	350	12,0-18,0 cm ³ /1000 strokes		3,0
1 5 Start	100	mind. 90,0 cm ³ /1000 strokes		
1 6 Full-load speed regulation	1100	19,0-27,0 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2 1 Timing device	rev/min	250-400(220-430)	600	810-930
	mm	Start	(5,0-6,6)	9,7-10,4(9,4-10,7)
2 2 Supply pump	rev/min	100	600	1050
	kp/cm ²	1,1-1,6(0,9-1,8)	(3,9-4,8)	5,9-6,4(5,7-6,6)
Overflow delivery	rev/min	500		1050
	cm ³ /10 s	mind. 25		55-125(40-140)

2 3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1110-1160 (1090-1180) 1100 1000 900 500	0 (18,0-28,0) 61,0-63,0 (60,0-64,0) (61,0-63,0) 58,5-62,5 (58,5-63,5)	
	Stop	1050	0	
Idle stop	Full	390-440 (370-460) 350	0 (11,0-19,0)	
	Start	100 500	mind. 90,0 35,0-60,0	(34,0-61,0)
End stop		mind. 150		

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Testoil-ISO 4113

Angle to the stop-plate	Pre-setting dimensions
Pump $\alpha = 25 \pm 4^\circ$ $\beta = 40 \pm 8^\circ$ $\gamma = 30 \pm 8^\circ$ $\delta = 60 \pm 8^\circ$	Pump Dimension IV = -- mm Dimension V = -- mm

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 IHC 3,9 a 5

2. Edition

VA 4/100 H 1050 BR 12-4 Nozzle-and-holder assembly
0 460 304 104 1 688 901 020 (172 + 3 bar)

supersedes 5.77
company IHC
engine D 239 charger 125

Setting of the pointer at a stroke of 1 mm in
relation to outlet "A".

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B
Pre-setting see reverse side

Pre-stroke setting 0,5 mm \pm 0,02 (\pm 0,04)

Testoil-ISO 4113

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1.1 Timing device travel	700	6,5-7,5 mm		
1.2 Supply pump pressure	700	4,8-5,3 kp/cm ²		
1.3 Full-load delivery without charge-air pressure	800	71,5-72,5 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1.4 Idle speed regulation	350	15,0-21,0 cm ³ /1000 strokes		3,0
1.5 Start	100	mind. 85,0 cm ³ /1000 strokes		
1.6 Full-load speed regulation	1130	28,0-36,0 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2.1 Timing device	rev/min	250-400(220-430)	700	840-990
	mm	Start	(6,2-7,8)	9,7-10,4(9,4-10,7)
2.2 Supply pump	rev/min	100	700	1050
	kp/cm ²	1,4-1,9(1,2-2,1)	(4,6-5,5)	6,1-6,6(5,9-6,8)
Overflow delivery	rev/min	500		1000
	cm ³ /10 s	mind. 25		55-125(40-140)

2.3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1160-1220 (1140-1240)	0	
		1130	(27,0-37,0)	
		1030	69,5-72,5 (68,5-73,5)	
		800	(71,0-73,0)	
		500	69,5-72,4 (68,5-73,5)	
	Stop	1050	0	
Idle stop	Full	370-430 (350-450)	0	
		350	(14,0-22,0)	
End stop	Start	100	mind. 85,0	
		500	35,0-69,0 (34,0-70,0)	
		mind. 150		

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Angle to the stop-plate	Pre-setting dimensions
Pump = $25 \pm 4^\circ$ α β = $40 \pm 8^\circ$ γ = $30 \pm 8^\circ$ δ = $60 \pm 8^\circ$	Pump Dimension IV = 1,5 mm Dimension V = - mm Dimension I = 7,0 mm Dimension II = 14,0 mm Dimension III = 35,8 mm

Testoil-ISO 4113

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 IHC 3,9 a

3. Edition

En

VA 4/100 H 1050 BR 12 0 460 304 048
BR 12 - 3 0 460 304 049
BR 12 - 7 0 460 304 142

supersedes 5.77
company IHC
engine XDD 239

Nozzle-and-holder assembly 1 688 901 020 (172+3 bar)

Setting of the pointer at a stroke of 1 mm in relation to outlet "A".

Pre-stroke setting 0,5 mm

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B
Pre-setting see reverse side

Testoil-ISO 4113

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1.1 Timing device travel	600	8,1-9,1 mm		
1.2 Supply pump pressure	600	4,5-5,0 kp/cm ²		
1.3 Full-load delivery without charge-air pressure	800	64,0-65,0 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1.4 Idle speed regulation	250	17,5-23,5 cm ³ /1000 strokes		3,0
1.5 Start 196 bar	100	mind. 85 cm ³ /1000 strokes		
1.6 Full-load speed regulation	1100	41,0-49,0 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2.1 Timing device	rev/min	150-300 (120-330)	600	830-980
	mm	Start	(7,8-9,4)	13,7-14,4 (13,4-14,7)
2.2 Supply pump	rev/min	100	600	1050
	kp/cm ²	1,6-2,1 (1,4-2,3)	4,2-5,2	6,2-6,7 (6,0-6,9)
Overflow delivery	rev/min	500		1000
	cm ³ /10 s	mind. 25		55-125 (40-140)

2.3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1110-1160* (1090-1180)	0	
		1100	(40,0-50,0)	
		1030	66,0-69,0 (65,0-70,0)	
		800	(63,5-65,5)	
		500	57,0-60,0 (56,0-61,0)	
	Stop	1050	0	
Idle stop	Full	310-360 (290-380)	0	
		250	(16,5-24,5)	
End stop	Start	100	mind. 85	
		mind. 150		

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Angle to the stop-plate	Pre-setting dimensions
<p>Pump</p> <p>$\alpha = 25 \pm 4^\circ$</p> <p>$\beta = 40 \pm 8^\circ$</p> <p>$\gamma = 30 \pm 8^\circ$</p> <p>$\delta = 60 \pm 8^\circ$</p>	<p>Pump</p> <p>Dimension IV = 0,5 mm</p> <p>Dimension V = - mm</p> <p>Dimension I = 7,0 mm</p> <p>Dimension II = 14,0 mm</p> <p>Dimension III = 35,8 mm</p>

Testoil-ISO 4113

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 IHC 5,8 b

3. Edition

En

VA 6/100 H 1100 BR 36

0 460 306 038

supersedes 6.67

company IHC

engine D 358

Nozzle-and-holder assembly

1 688 901 020 (172 + 3 bar)

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers

Test Instructions and Test Equipment
VDT-WPP 161/4 B

Pre-setting see reverse side

Testoil-ISO 4113

Pre-stroke setting 0,3 mm

Plunger lift of 1,0 mm related to outlet "A"

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1 1 Timing device travel	700	5,3-6,3 mm		
1 2 Supply pump pressure	700	5,4-5,9 kp/cm ²		
1 3 Full-load delivery without charge-air pressure	800	70,0-71,0 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1 4 Idle speed regulation	250	17,0-23,0 cm ³ /1000 strokes		3,0
1 5 Start	100	mind. 90,0 cm ³ /1000 strokes		
1 6 Full-load speed regulation	1200	26,0-34,0 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2 1 Timing device	rev/min	350-500(320-530)	700	940-1100
	mm	Start	(5,0-6,6)	9,7-10,4(9,4-10,7)
		100	700	1100
2 2 Supply pump	rev/min	1,1-1,6(0,9-1,8)	(5,2-6,1)	6,9-7,4(6,7-7,6)
	kp/cm ²	500	1000	
Overflow delivery	rev/min	mind. 25	55-125(40-140)	
	cm ³ /10 s			

2 3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1270-1320 (1250-1340)	0	
		1250	(25,0-35,0)	
		1080	71,0-74,0 (70,0-75,0)	
		800	(69,5-71,5)	
		500	65,0-68,0 (64,0-69,0)	
	Stop	1100	0	
Idle stop	Full	370-450 (350-470)	0	
		250	(16,0-24,0)	
	Start	100	mind. 90,0	
		500	max. 55,0	
End stop		mind. 150		

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Angle to the stop-plate	Pre-setting dimensions
Pump $\alpha = 25 \pm 4^\circ$ $\beta = 30 \pm 8^\circ$ $\gamma = 30 \pm 8^\circ$ $\delta = 60 \pm 8^\circ$	Pump Dimension IV = 4,0 mm Dimension V = - mm

Testoil-ISO 4113